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EPSON CONNECTION

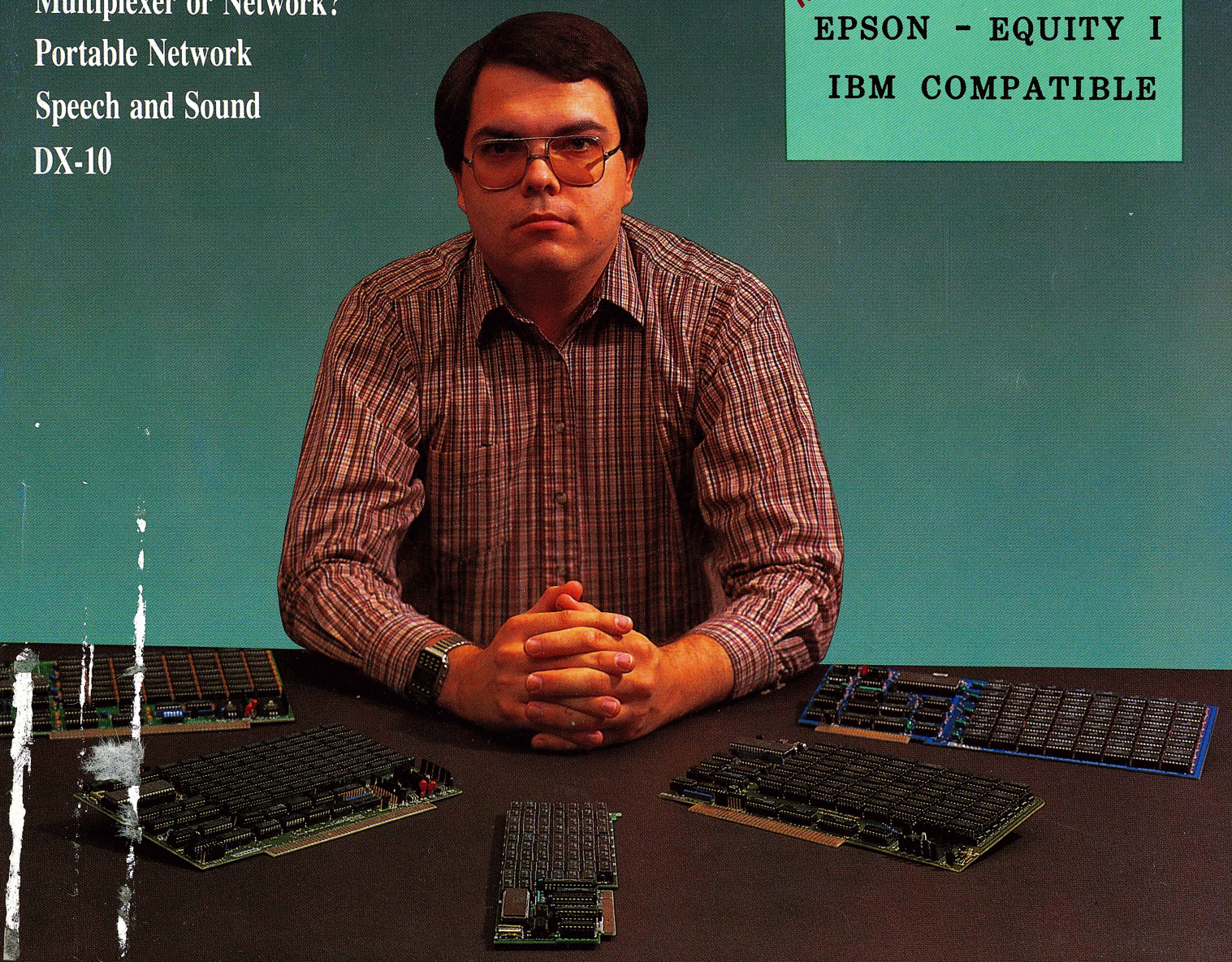
Devoted to Epson Desktop and Portable Computer Users
NOVEMBER 1985

A FOCUS ON PERIPHERALS:

Protect Your Computer & Data
Utilities for the QXPC2
Multiplexer or Network?
Portable Network
Speech and Sound
DX-10

VALDOCS +

NEW
EPSON - EQUITY I
IBM COMPATIBLE



Jim Bell Discusses the SemiDisk

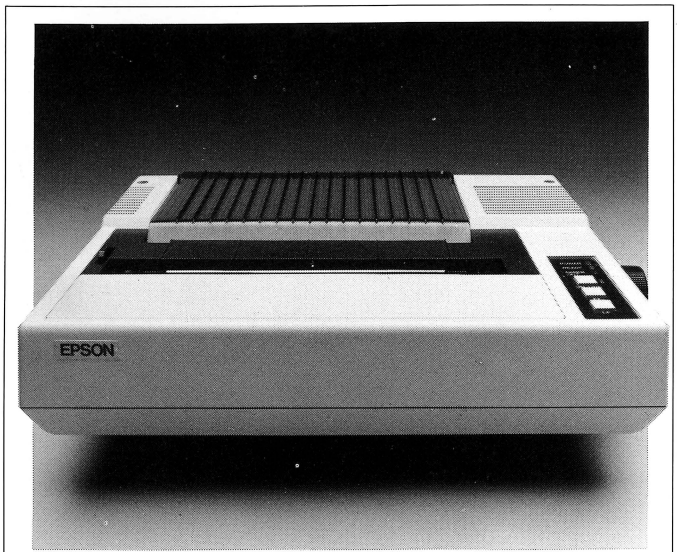
Like our ads, seem to go

The NON-STOP *small business printers.*

A simple printer failure can be the downfall of a small business.

No invoices. No computer generated letters. No labels, proposals or reports. And no printer in the next office to pick up the slack.

That's why most small business people rank reliability as the number one priority in a printer. And that's why more businesses of all sizes use Epson® printers than any other printer in the world.



YEARS AHEAD OF THE COMPETITION

While most other printers only offer standard 90 day warranties, we stand behind Epson printers for a full year. And we've been doing it longer than most printer companies have been in business. Of course the warranty is one benefit of owning Epson printers that very few people have ever had the opportunity to take advantage of.

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For over a decade, major computer companies have staked their own reputations on the reliability of Epson, by coming to us for the printers they sell with *their* computer systems.

Epson dot matrix printers have very graphic advantages. Besides the versatility of draft and Near Letter Quality and the corresponding speed options, they can draw some very convincing pictures, including true circles.

INCOMPATIBILITY: *the irreconcilable difference.*

Software drives your computer. Software also drives your printer. And it's possible that your computer software will not be compatible with your printer.

This can be shocking when the p's on your monitor come out as q's on your printer.

But Epson printers are the standard to which virtually all major computer software is written. So whether it's IBM® or the newest name on the market, you can use your Epson printer with almost any hardware/software combination.

Epson printers on *forever...*

HARD COPY DECISIONS MADE EASY.

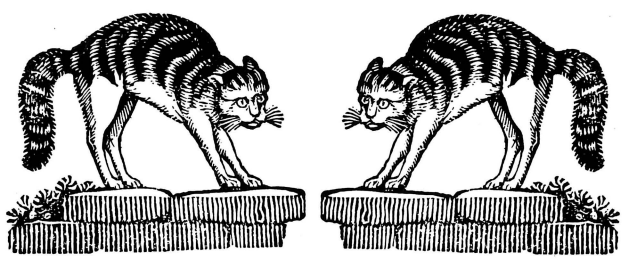
Depending on what you print, how much you print, and how much you want to invest, you'll find the right small business printer right here.

"So the question is: 'Which Epson?'"

For Starters. You're a small business just starting to use computers. Well, just because you don't want to invest a lot doesn't mean you have to settle for less than you need. The new low cost *Spectrum™ LX-80* operates at 100 characters per second in draft mode, prints Near Letter Quality text, has 160 typestyles and has a full range of expansion options. Backed by the same full year warranty as our more expensive printers, it's built to work just as hard.

The New Standard. The Epson FX series have again set new standards as the workhorses of the industry. With print head speeds of 160 characters per second in draft mode, easy access to Near Letter Quality, and excellent graphics, they're the number one selling printers from the number one printer company. For spreadsheets and financial reports, there's a wide carriage model.

The Complete Printer. For speed, quality and versatility, there isn't a better choice than the new *LQ-1500.* Its type rivals that of an office typewriter, at four times the speed of the average daisywheel printer. In draft mode it flies at 200 characters per second. And its graphics are among the highest resolution of all dot matrix printers.



Recently in Martinez, California, two cats knocked an FX-80™ printer 4 feet onto a tile/concrete floor. Although it didn't land on its feet, it is still running.

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"Thank you for making such a rugged yet so fantastic piece of hardware."
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"...a relief in this industry often faulted by products designed to last about ninety days."
John Cameron, Medical Director, Raleigh Hills Hospital

"I have had my Epson FX-80+ about six weeks... my only regret is that I didn't replace my old printer a year ago."
L.A.R., 29 Palms, CA

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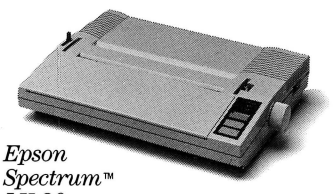
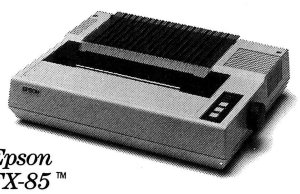
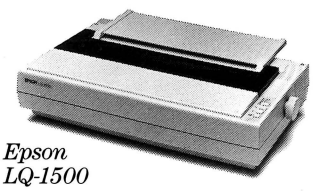


Epson Spectrum™ LX-80



Epson FX-85™



Epson LQ-1500

For more details, call (800) 421-5426 or in California (213) 539-9140.

EPSON

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EPSONCONNECTION

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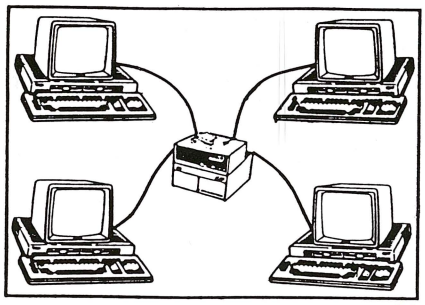

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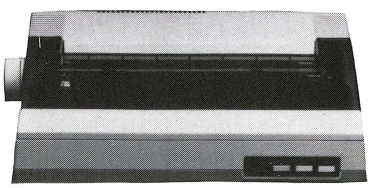

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Editorial

Peripherals are the central focus of this issue. Computer equipment has been decreasing in price and, as a result of this, more people are in the market for peripherals. There is a tremendous variety available. "What peripherals do I need?" and "Which one should I buy?," are frequently asked questions.

If you use your computer for business purposes, then I feel a hard disk is an absolute must. The primary benefit is data storage and availability. How many times have you had to search through a box of disks, loading each one in and checking the index to find a particular file or form. Not only does a hard disk increase data storage, but I find work progresses more rapidly, the programs run faster and access to files is almost instantaneous. There are a few suppliers of hard disks for the QX owners: Bi-Tech, Forrest Micro, the discontinued Comfiler from Comrex, and a new company P.R.O. Systems. An office using several QX computers (and even other brands), should consider shared peripheral resources. The article by Allen Howell in this issue discusses two such systems: a multiplexer and a network.

The user who wants real speed and moderate storage, should consider the SemiDisk with a battery back-up. Rising Star is offering special coupon discount prices for the SemiDisk (for example, a 2M board at virtually half price) with the purchase of their Valdocs+ Package, so now is the time to consider it. QX-10 owner David Robinson interviewed Jim Bell, President of SemiDisk Systems for us. Their discussion in this issue clears up quite a few questions users ask about the ramdisk.

The portable PX owner is faced with somewhat similar choices: single disk drive, ramdisk, multifunction unit, and there is now a Portable Network System (PNS) available from Information Management Group. This issue contains a description of their unique LAN for the Geneva.

Another primary peripheral to consider is a modem. Our August (1985) issue was devoted to communications. If you are going to be involved in extensive telecommunications, then save some future telephone money and go right to the higher speed (2400 baud) modems currently available.

How about printers? There are so many printers you can be overwhelmed just thinking about them. PC magazine (Sept 1985) reviewed 70 new printers by price category. Among their "winners" was the FX-85/185 and the SQ-2000. The DX-10/20 was not available in time for their review but we agree with Tim Nash (DX 10/20 review this issue), it is a nice entry by Epson into the inexpensive, letter-quality market.

QX-PC2 boards are becoming commonplace among QX-10 owners, Allen Howell has reviewed the newer software from Titan; Ram Disk and Printer Buffer. He feels they are both very positive additions for Titan board owners.

Other peripherals available include: speech and sound synthesizer board, color, power-line protectors, optical character reader, digitizer tablet, mouse devices, encryption card, printer buffers, various switch boxes, light pens and PowerPak for portables.

Two new products are introduced briefly this month, the new line of desktop computers from Epson called the EQUITY I (page 12) and Valdocs + from Rising Star Industries (page 15). We will do indepth reviews of these in the coming months. **We would like to encourage user feedback on Valdocs +**, share your discoveries, reactions, and time-saving tips.

NEWSFLASH - The EpsonConnection has just completed the initial steps to assume the responsibility and management of the EpsOnLine SIG on CompuServe. The transfer from Epson America will take place through October and November. This will enable us to provide a special trial package to all our subscribers next month. We will be discussing our plans, and detail how to signon and explore the CompuServe network in the coming months.

Carolyn McCarthy

Letters to the Editor

Valdocs 2 Feedback

Dear Carolyn,

I received my copy of Valdocs 2. just a few days ago and would like to report some impressions. First, the June/July Connection arrived before I got Val. 2 and I found your articles, especially the one on creating a custom editor disk, a big help, many thanks.

As you know, Valdocs 2 has a locked-in screen font that eliminates blank lines. This feature is a disaster and will prevent me from using Val 2, or at the very least will make me resort to single spacing with word wrap off.

Many writers must be able to see exactly how the hard copy will appear and Val 2 prevents that. It is beyond belief that Epson could pull such a stunt! I would like very much to know if there is a fix for this as I must have exact screen formatting as with Val. 1. Any help would be greatly appreciated; at least maybe you could pass the word on to Epson.

To explain a little of the need for exact formatting, I write technical / scientific manuscripts. I have to submit double - spaced copy and I have to be able to see on-screen exactly how the copy will appear in print. In addition, some of my text requires special spacing to achieve special effects (a half - space effect for fractions, for example, and line diagrams which I can create with GRPH SHIFT characters). In other words, I need to "type between the lines" for certain special effects, thus I often use single spacing or triple spacing within a double - spaced page. This I did easily with the old Valdocs; it is so difficult with Val. 2 that it defeats the purpose of having a word processor.

I am extremely pleased with the SIZE and STYLE functions, which were major reasons for my purchasing a QX-10 some two years ago. The two - year wait has been a big aggravation, as you know, and I have already done by hand or on a regular typewriter much of the work for which I bought the machine.

I am delighted with the MATRIX programs as now I can create all the special symbols that are so commonplace in technical / scientific work. Epson is to be praised for this.

The lack of speed is still disappointing. Although the typing speed is great, file operations and menu selections, such as setting page format, are in some cases slower than on Valdocs 1. And when editing old text, as I do, the data drive pulses continuously for minutes at a time. This is quite distracting and interferes with the keyboard action, causing a jerky, out-of-sync action; then I simply have to quit and wait, for up to a minute at a time, for the drive to stop.

Sincerely
Tom Zurflieh

QX-10 Technical Manuals

Dear Ms McCarthy,

Now that the QX-16 has been released, the future of the QX-10 seems to be up in the air. Let's assume the worst case for the moment: the QX-10 is discontinued, and my local dealer goes out of business. Three years from now, my computer breaks-down. I prefer to have it repaired locally, but my computer shop says they don't have any information on the QX-10, and suggest returning it to an authorized Epson dealer 100 miles away. I have a price list from G.W. Smith Associates indicating that there is a Technical Manual, a Trouble Shooting Manual, and "Diagnostics" available for the QX-10. What do these manuals and the "Diagnostics" cover? Which should I as an owner have so that any computer repairman could service my QX-10 in the future?...

Sincerely yours
Ed Acheson
Decatur, IL 62526

Ed,

The following manuals are available through an advertiser, your dealer, distributor (or if all else fails through us):

Part No.	*Recommended*
Title	*Retail price*
M-TM-QX-10	
QX-10 Technical Manual	*$49.95*
M-TM-QX10TS	
QX-10 Troubleshooting Manual	*$49.95*

The technical manual has fold out schematics of all the boards and monitor, as well as containing chapters on each of the major units, like power supply unit, keyboard unit, floppy disk drive, etc. The appendix contains tables of the main IC's (chips), and the signals at each pinout. This is the manual included with the Epson QX-10 technician training classes and provides all the information a technician should need. Repairs to circuit boards are done at a board swap level, soldering is just not done unless you're real good or gutsy because they are 4 layer circuit boards. A diagnostic disk was provided as part of the technical course, but is not available for the retail market. The troubleshooting manual contains step by step directions on disassembly of everything, lists tools needed, discusses adjustments and maintenance, and ends with about 100 pages of flow charts for troubleshooting the hardware. This is extremely handy, and I recommend it for any QX-10 owner.

There are also technical manuals available for the HX-20, PX-8, all the Epson printers, Comrex printers, as well as one for the Comfiler. Epson also has Mechanism Manuals for the MX, RX and FX series printers. These are detailed major mechanical disassembly/assembly/adjustment procedural manuals (22.95). If you are unable to locate these we can assist you.

-C.M.

Questions & Answers

Q Why doesn't the User ID disappear from the menu after being stored on the QX-10? It works correctly on the QX-16 but on the 10 it is still visible.

Jean Thompson
Appleton, WI

A *If your Zapple trap is enabled, then the User ID option will always be present in the menu. If you disable your Zapple trap through SETUP then the User ID option will disappear. This is the case on both the QX-10 and the QX-16.*

Q How does the Read Cursor (ESC ?) work in CP/M B? I want to be able to read the row and column position of the cursor in MBASIC.

A *To read the cursor position in MBASIC, use these statements:*

```
1000 PRINT CHR$(27);"?":A$=INKEY$
     :B$=INKEY$:C$=INKEY$
1010 A=ASC(A$)-32:B=ASC(B$)-32
```

"A" will be the row, values from 0 to 23, "B" will be the column, 0 to 79. C$ is there just to trap the carriage return that the read cursor function returns after row and column values.

Q Whenever I use an MS-DOS board in the QX-10, I have to reset once at a cold boot and twice for a warm boot to load a program in CP/M. Why is this?

A *You need to install the newer QX-10 IPL ROM. You can order it from most authorized Epson dealers. Part number is QIXQ.*

Q There are some interesting public domain software programs described on pages 41 and 42 of the September issue of EC. How can I get them?

Caroline Raboy
Mount Dora, FL

A *These programs are available on our BBS. Obviously, you must have a modem to call into our system (Ph# 313-823-1425). For those of you who do not have modems, we have our Disk of the Month which contains many of the programs we mention in the magazine.*

Q I now have the RX80FT+ printer with my QX-10. The dealer who sold me the complete "package" never mentioned that I would not be able to use the graphics capabilities of Valdocs with this printer. So, I am now thinking of selling my printer and buying one that I can use the Valdocs2 graphics. What Epson printers (or others) can I use so that I can get the most use out of my QX-10 and Valdocs2? I do not want to spend a lot of money.

Helene Steinbuck
Edgewater, NJ

A *The printers that fully utilize the graphic capabilities of the QX-10 are the FX series, LQ-1500, and the JX-80. May I also point out that in the early days, many dealers did not realize that the RX printers would not print some of the Valdocs graphic symbols, and many times the QX-10 and the RX-80 were sold as a package which was promoted by Epson America to their distributor/dealer network.*

Q I have an off-the-shelf version of dBase II and I'm wondering how I can access my QX-10's internal date and place it in the dBase DATE variable. If I could write a program that would get the date automatically, I wouldn't have to type it in everytime I begin a session with dBase. Is there a way I can do this?

Gregg Robertson
Eugene, OR

A *Yes. There are two possibilities. The first method is to create a BASIC program that will read the date and write it out to a disk file each time your computer is booted (this routine can be found on page 14 of the March '85 issue), then dBase can read the file and store the contents of the file into the date() variable. The second method (and probably the better) is to download the QXDBDATE.LBR file from our BBS. This program is a dBase program that can directly read the date and time and store it into the date() variable. (Note: QXDBDATE.LBR was created and uploaded by Alan Gilbertson).*

Q What hardware is required to make my QX-10 into a color computer? Approximately how much would this cost?

Scott E. Harris
Starkville, MS

A *The hardware you need is an Epson color monitor and color board. The only source for these components is through United Exim Systems (Ph 213-380-5668). The cost of their QX-10 upgrade around $1,700.00. Note that the color monitor works only on the 8 bit mode, and WILL NOT function with the QXPC-2 card. Also, the only software currently available to utilize and run the color is Valdocs 2 and some RSI BASIC programs.*

NOTICE

September EC ,page 13, new product release should read as follows:

X PORTER FANFOLD I/O SYSTEM
80 col. $64.50 136 col. $74.50

This is a new system for handling printer paper. The Porter System holds up to 1,000 sheets of fanfold paper for the printer and displays and stores the resulting printout. Available in 80 and 136 column widths.

Peri-Comp, Inc.
P.O. Box 188
Lake Geneva, WI 53147
(414)248-8585

EpConn UpNotes

by Allen Howell

This month we'll discuss a few of the changes and some tips on using the Epconn SOCIS (Subscriber Only Computer Information Service).

We would like to acknowledge and thank our Co-Sysops who have been maintaining their specific message bases on the BBS. Mike Russell - CPM message base, Erik Nowakowski - TECHTALK, David Crotty - MS-DOS, Bob Hermann - PX-8, and Mike Rehling who has provided much in the most active message base, VALDOCS2.

Our new BBS is not only designed to be more efficient for the user, but is also more organized for the Sysop. Many callers forget that they are using someone else's computer when they call, and really have no idea of the amount of maintenance that goes on "behind the Screen". That's why we now have Co-sysops for some of the message bases - to share the workload. One time-consuming process for instance, is placing new material (programs) in their respective areas. We take the time to examine most of the uploaded material received, write a brief sentence about it, stamp a rating on it, then make it available for you to download. Our new UBBS makes this task more efficient thus, more timely than before.

To take advantage of the new configuration, here are a few tips you may wish to implement. If you are a regular caller, we encourage you to read and/or download all the HELP files that are available within the information module (IN). Once you know some of the "tricks" that the system is capable of, you'll be able to get into, and out of the BBS much faster, while gaining just as much, or more information. For example, when you read messages from any message base, simply enter an asterisk (*) for the message number you wish to read. This will tell the UBBS to display ONLY the messages that have been posted since you last called. Users who call in at 300 baud should use the expert (EX) mode. This is the command line mode, and is much faster that the menu mode.

For those of you who call to download the latest uploads, you should read the UPLOAD file in the IN module. This will display all the latest uploads to the system.

File transfers are now performed through the File Transfer (FT) module. This is much easier than searching through all those cryptic user areas. The FT module is menu driven, and if you called to download the latest PX-8 program, simply enter 'PX-8' from the FT module, and the system will display all the PX-8 programs available. Some software is stored in

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• ALLOWS MERGING OF USER SELECTED RECORDS FROM A FILE •

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directories, such as CP/M software. Once you enter the CP/M directory, you may choose from CP/M modem, utility, languages, games, and application programs. Select your sub-choice, and the system will display all filenames associated with that category.

Note that the FT module only supports ASCII and XMODEM checksum protocol. Note I said 'checksum', not CRC. This will not affect Valdocs Mail users, since it uses checksum as its' default. However, QXMDM users should be sure to toggle from CRC to checksum when you plan on downloading from Epconn SOCIS, since QXMDM's default setting is CRC.

File uploads may also be performed via ASCII or XMODEM checksum. Note however that the UBBS cannot receive files via XMODEM at 2400 baud. Compiled BASIC just isn't that fast. If you wish to upload at 2400 baud, notify the Sysop, and he will grant you access to CP/M, where you can use the standard XMODEM program to upload.

Password:

The "front-end" password remains HASCII. Note that this password is only effective on the Detroit, MI Epconn SOCIS BBS, and NOT throughout the network.

Software Request:

Since we have been listing the public domain programs in the EC, we have received numerous letters from users asking how they can get this software without a modem? Some users are sending disks along with a list of selected programs they would like copied. Due to the number of these requests we will provide a Public Domain Transfer Service (PDTS). The rates are $20 per disk, you supply the disks; $25 per disk if we supply the disks. You may select a maximum of 10 programs to be copied onto a single disk (not to exceed 376K). If you wish more than that you must have another disk. Our 15 page Public Domain Listing may be obtained for $3.

Send response to: EpConn PDTS
P.O. Box 14027
Detroit, MI 48214

For those of you who have a modem, the PD programs listed in the EC, along with a master PD listing are ready to download from our BBS. The EpConn SOCIS number is 313-823-1425.

PRESS RELEASE===

Computers in Drug and Alcohol Rehabilitation

The World's first computer exhibition for the Drug and Alcohol rehabilitation field will be a feature of the 9th annual Drug and Alcohol Abuse Conference sponsored by the Office of Drug and Alcohol Programs of the Pennsylvania Department of Health, at the Pocono Hershey Resort, White Haven, PA., Nov. 20-22, 1985.

The show will feature selected hardware and software vendors demonstrating applications for Drug and Alcohol Treatment, Prevention, Administration and Intervention.

In addition, a two hour workshop entitled "Putting Small Computers to Work in the Drug and Alcohol Field" will be presented on Nov. 21 by Dan Fisher, an independent Microcomputer consultant specializing in the Drug and Alcohol field.

For registration information contact:

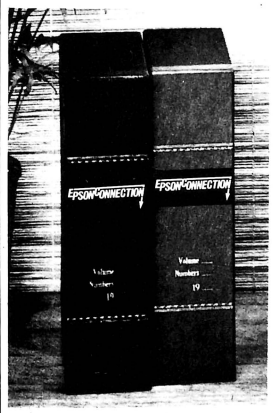
Terri Matio
PA. Dept. of Health
(717) 787-2180

The Uploads:

New Public Domain Software/Updated Aug. 27, 1985

Al's Opinion Scale:
★ = Fair, ★★ = Good, ★★★ = Excellent, ★★★★ = Must Have, ??? = No Comment

FILENAME	RATING	SIZE	DESCRIPTION
AKFILES.LBR	???	14K	Astrokey Keyboard Redefinition examples for QX10/16 Uploaded by Harry Demarest.
TURBOQX.LBR	???	12K	Turbo Pascal editor setup for QX-10 keys, graphics. Uploaded by Harry Demarest.
SETDRU.LBR	★★★	40K	User area Independence. Uploaded by Jon Morris.
SWAPVAL+.TPM	???	6K	Latest version of a program that eliminates V1 and V2 from starting to cold start when you swap versions. Uploaded by Mike Rehling.
SWAPVAL+.DOC	-NA-	2K	Documentation for SWAPVAL+.TPM.
MXO-SM16.AQM	???	7K	The latest and best MEX overlay for Hayes Smartmodem and clones. Uploaded by Alan Gilbertson.
ZDAM.COM	???	8K	REZ.COM with real mnemonics without the comment bug. Uploaded by Alan Gilbertson.
UBBS2.LBR	★★★★	216K	In my opinion, the best BBS software available in the public domain.
QVP.LBR	★★	6K	QX Viewport swapper. Uploaded by Alan Gilbertson.
QXDBSCRN.LBR	★★	6K	Allows access of different screen fronts via dBASE. Uploaded by Alan Gilbertson.
UNSPOOL.LBR	★★★	16K	Print files to your printer without waiting for the printer to finish. A software print spooler.



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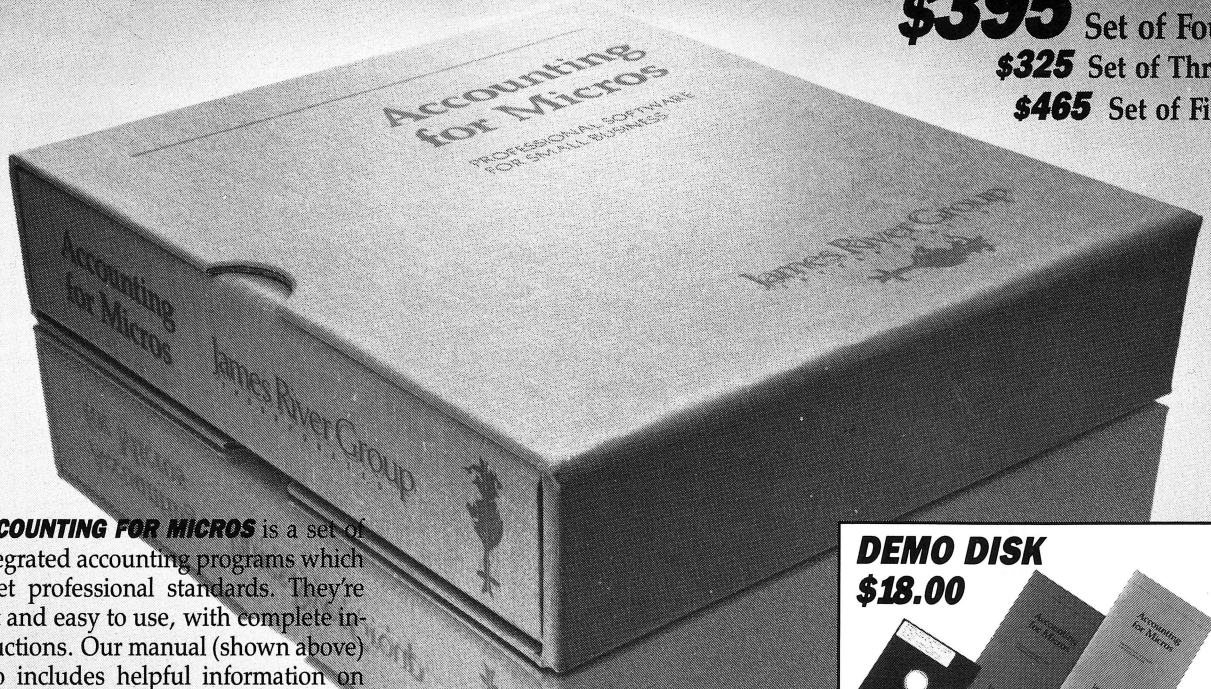

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The Users

BASIC for MS-DOS QX-10 Owners

Those hardy souls who own the QX-PC2 board with the QX-10 know full well that there is no BASIC system for them. GWBASIC is available for the QX-16 and still (STILL) promised for the QX-10. Well, wait no longer because TrueBASIC is here for you now.

TrueBASIC was written by the two guys at Darthsmith who originally designed BASIC for the mainframe machines. They were appalled by the variations of BASIC that have cropped up. They notice that Microsoft BASIC, for example, is not the same on every computer it's written for. They have set out to design BASIC as they think it should be.

The first implementation of TrueBASIC is written expressly for the IBM PC, with other computers promised REAL SOON NOW. All versions are promised to be identical. While a generic MS-DOS version is one of the promised products, the IBM version works very well on the QX-PC 2. All the normal commands that I have tried work as expected. I have also tested the disk file systems with success.

The only parts of the TrueBASIC system that do not work are (as expected) the graphics commands. The system simply notices that it is not in an IBM PC and refuses to run graphics programs.

What the system does offer includes a number of loop and decision making routines that are absent from MBASIC. The programs are compiled before they are run to provide error checking before running and fast execution. The compiler unfortunately does not produce "stand alone" programs. Compiled programs must be run in the TrueBASIC environment. The speed of the compiled programs rivals the speed of other fast running systems like Turbo Pascal.

The package includes two very nicely written manuals that make the language very easy to learn, even for the beginner. All systems should come with this kind of documentation. MBASIC, TurboPascal, and Valdocs are examples of systems that do not measure up when it comes to documentation.

TrueBASIC is available from Addison-Wesley Publishing Co., Reading, MA 01867. (617) 944-3700 $149.90.

Contributed by David Crotty, (South East Michigan Epson Forum, Will Advise Newsletter, August 1985: P.O.Box 80702, St Clair Shores, MI 48080).

NOTE: Coming soon in the EC, an in-depth review of TrueBASIC by David Crotty. Don't miss it.

Using UNDO to Move Words & Blocks

Use the UNDO key to move words and phrases, much faster than Block Moves. Delete the word or phrase you want to move. Reposition the cursor where you want the word or phrase to reappear and press the UNDO key to bring it up one letter, one word or one line at a time. When UNDOing a line, be sure the cursor is on a blank line or you will get a beep.

"ValWorld Tip-Valdocs 2" from the ValWorld Gazette (June, July, August, 1985). Don Terp, Editor: ValWorld Gazette, 5140 Appletree Dr., Roanoke, VA 24019.

Continued on page 40

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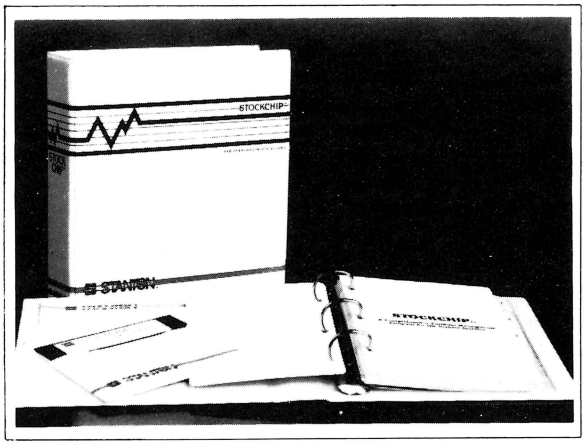

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SPEC SPOT

Product: Equity I
Type: 8088, 16 bit, desktop computer, operates at 4.77 MHz.
Operating System: IBM PC compatible, MS-DOS.
Standard Features: 256K RAM, 16 KB ROM, 5 1/4 inch half height, double sided, double density drive (360 K storage, note the controller is on the main circuit board and does not take up an expansion slot), 55-key QWERTY keyboard with 14-key numeric pad, 10 function keys (operates in three modes, normal, shift, and user definable).
Interfaces: RS-232C (uses DB-25 connector), standard 8-bit parallel port (DB-25 connector), internal speaker, three IBM bus compatible expansion slots, and a dedicated memory connector on the motherboard for the 256K Epson expansion memory board.
Bundled Software: MS-DOS 2.11 and GW-BASIC, Operations manual, standard DOS utilities including HDSIT, SETPRINT and two special Epson utilities: XTREE and DU (similar to CP/M B menu driven INDEXER, and COPYDISK features for the QX models).
Options: 8087 support (socket on mother board), second floppy drive (must use an Epson floppy disk drive) or 20M half height internal hard disk drive, monochrome video (80x25 line) or RGB color (320x200 pixel, 80x25 line display) monitor, plus any number of IBM compatible expansion boards.
Available Models: Three factory-built configurations will be available. Each requires the addition of a video board and monitor. Model A (as detailed above), Model B includes two floppy disk drives, Model C includes one floppy disk drive and an internal Epson 20M hard drive.
Warranty: Epson one year warranty.
Compatibility: Extremely compatible, runs all major software packages tested to date including Microsoft Flight simulator, Lotus 1-2-3, and all IBM PC compatible hardware boards tested. Purported to run concurrent DOS and Xenix given enough memory.
Price: EQUITY I: Model A (one drive, keyboard, CPU as described) $995. Model B (two floppy disk drive version) $1295. Model C (one floppy drive, one 20M internal hard disk drive) $2195.
Ease of Use: The special utilities XTREE and DU make the interface to MS-DOS user friendly.
Performance: Seems to be an excellent PC clone. The keyboard is similar in action to the newer QX keyboard models.
Manufacturer:
Epson America, Inc.
2780 Lomita Blvd.
Torrance, CA 90505

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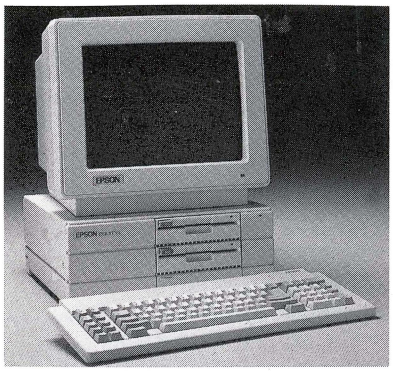


by Carolyn McCarthy

For those unfamiliar with the IBM PC, a paragraph of explanation may be eye-opening. Basically, the PC comes as a stripped down shell, it includes the case and main circuit boards, a keyboard and five empty expansion slots, a single disk drive and controller card (the card takes up an expansion slot). The monitor (ranging from $130 monochrome to $500 for color RGB) and monitor interface card must be added at additional expense (color, monochrome, graphics cards are generally available for $150-$475). If you want to attach a printer, mouse, or modem you also must purchase an interface card. There are several multifunction cards available with serial and parallel ports, mouse support, and expansion memory; prices range from $125 to $350. Epson and Leading Edge provide one year warranties, whereas IBM, AT&T, Kaypro, Zenith, Corona, Sanyo, Tandy, ITT, and Compaq are among those who only offer a 90 day warranty on their computer product.

Lets compare prices among the new Epson Equity and IBM PC systems (prices for the IBM are from mail order advertisers). If you take the Equity with two disk drives, GW BASIC and the standard parallel and serial ports, and compare it with a IBM PC with these same features you will find: Equity suggested retail price with two drives $1295. IBM PC two drive (discount mail order price) and controller card $1495. Plus a serial and parallel card $135+ and GW BASIC $60.

Equity Total $1295 versus IBM PC Total $1695. (Remember the prices I have mentioned for the IBM are from mail order houses and vary widely by company and geographic location.) These totals reflect the prices without a monitor or the addition of a monitor interface or graphics card. Add approximately $278 for monochrome operation, and around $675 for color graphics and an RGB monitor.

These system prices do not include any word processing, spreadsheet, telecommunications, mail list, or such software. Now you know why the QX-10 and 16 were not only reasonable, but excellent choices.

Why would Epson join the main stream and chase after the IBM PC compatible market? They are recognizing the substantial market for IBM compatibles, and want a piece of that market. Does this mean that they are abandoning the QX and PX owners? Epson has an extended contract with RSI for customer and product support, and Epson is continuing their work on producing lists of compatible third party software for the QX-10 and QX-16. The Geneva still has new software arriving and it is anyones guess whether they are working on an MS-DOS portable. It would seem to me that QX support will fade, except as supported by some of the third party companies like Rising Star, SemiDisk, Bi-Tech, Epson user groups and targeted publications (like us). CP/M has been around a long time, so do not expect that to vanish, there are still software companies continuing to produce products for CP/M machines.

New Look

The Equity does not take up much space on the desktop. It measures 14.5x15 inches, and weighs 24.3 pounds. The CPU unit has feet on the side so that it can sit on its base or skinny and tall on the side. There are three small doors which open easily on the front of the CPU, next to or under the disk drives. These house the power-on button, reset switch, connector for the keyboard, and the DIP SWITCHES! At last, convenience. The panel which opens to reveal the switches has a diagram indicating what each switch is for.

XTREE

XTREE is a file utility program provided with the new EQUITY. It is available separately for $50 from Executive Systems Inc., the company Epson contracted to customize CP/M B (with the similar INDEXER utility) for the QX computers.

When you arrive at the A> after booting up MS-DOS you can type in the word XTREE <CR>. You will be presented with a screen with a variety of windows. The top window contains the command line, to the right of that is a window indicating what FILE you are working with, below that is a window displaying the DISK

EPSON

Line of Computers and Printers

UITY I

INFORMATION: the logged in disk and available bytes. Below that is another window which displays DISK STATISTICS. The largest window displays the directory of the logged in drive. The commands available from this menu are displayed in three lines at the bottom of the screen. There is an eleven page HELP file which can be paged through onscreen if you need more information.

There are two features included in the Equity version of XTREE which are not present on the QX-16: eXecute and View. The eXecute command allows you to run programs on your disks without having to leave XTREE, and the View command allows you to view hex and ASCII equivalent documents.

One terrific feature is the ability to creating paths while in XTREE. The graphic representation of paths is displayed onscreen as they are formed.

More User Friendly Utilities

Another special Equity utility is called DU (Disk Utility). This program allows menu driven access to the following utilities: CHKDSK (check disk), DISKCOPY, DISKCOMP (disk compare), and FORMAT. This is basically the same utility as provided with the QX-16.

SETPRINT is another menu driven program which allows you to select a typestyle (condensed, elite, expanded, emphasized, or italics) or other code (proportional, double-strike, skip over perf, and unidirectional printing) to send to the printer.

SETUP is another familiar menu-driven program. It makes the process of setting up printers or modems for the different ports used in MS-DOS an easy task.

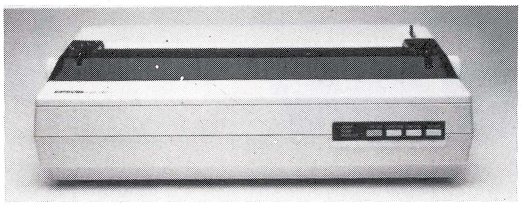
Summary

Epson has created a strong contender for the IBM PC market with a price which is hard to beat. The unit is expected in dealers stores during the month of November, and is now on display at the Infomart showcase in Dallas. We will have a full review on the Equity forthcoming, and will provide compatibility information as soon as possible. ■

NEW EPSON PRINTERS

DX-35

The DX-35 is Epson's top-of-the-line daisy wheel printer, capable of printing up to 35 characters per second using bidirectional "intelligent" logic-seeking electronics. The DX-35 comes with a 136 column carriage, standard friction feed mechanism for correct paper alignment, and an interchangeable Diablo print wheel. A separate keyboard is optional to transform the DX-35 into a typewriter.



DX-35

Specifications:

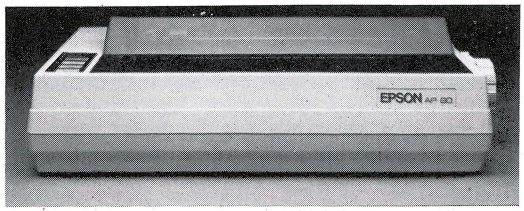
Printing method: Fully-formed impact daisywheel
Print Rate: 35 cps bidirectional
Print Wheel: 96 ASCII character, Diablo compatible
Ribbon: Replacement cartridge, multi or single strike Olivetti ET-221 compatible
Column Width: 136 characters at 10 CPI
163 characters at 12 CPI
203 characters at 15 CPI
Maximum printing area is 13.6"
Line Spacing: 1/6" or programmable 1/48" increments
Cut Sheet: Width: 16" max.
Thickness: 0.06 mm to 0.1 mm
Copies: original + 2 carbonless copies
Tractor Paper: Width: 16" max., 4" min.
Thickness: 0.22 mm max.
Copies: original + 2 carbonless copies
Buffer Size: 3k
Interface: Diablo API (single connector providing: Centronics parallel, RS-232C, IEEE-448)
Retail Price: $899.

AP-80

An Epson printer that is compatible with the Apple Imagewriter, yet offers more. Print speed is 75 CPS draft mode, 15 CPS in Near Letter Quality mode using bidirectional logic-seeking electronics. The unit loads in single sheet paper easily with the Auto Sheet Load capability. A removable tractor feed, which accommodates a wide variety of continuous forms, is standard. The AP-80 fully supports all Apple Imagewriter software created for the Macintosh, Apple IIc and IIe computers.

Specifications:

Printing Method: Dot-Matrix
Print Rate: Draft 75 cps, NLQ 15 cps
Character Sets: 96 ASCII characters: itialic set; 7 international character sets; user definable characters (9x16 matrix)
Column Width: Extended 72
Pica 80
Elite 96
Semicondensed 107
Condensed 120
Ultracondensed 136
Paper feed mechanism: Friction and tractor feed (tractor is removable); forward and reverse feed (2 line reverse feed max); Automatic single sheet load feature.
Multiple copies: Original plus 2, non-carbon, total thickness of less than 0.2 mm
Interface: Serial RS-232C
Ribbon: Cassette type - black
Price: $379.



AP-80

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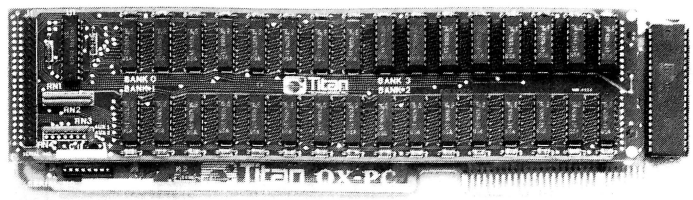

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Diskettes Nashua DSDD 10 box—Reg. $39.95 ..... 15.95
Team 300/1200 Modem, Hayes Compatible 299.95
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VALDOCS+

by Paul Rothweiler

Rising Star Industries announced their plans for the future of Valdocs in their September Rising Star Newsletter. The promises given by Chris Rutkowski are that: it is ready to ship NOW, and they are only listing features which they promise to deliver over the next few months (before Christmas).

Most of the major software companies have introduced new products, like MicroPro with WordStar 2000, and Ashton Tate with dBase III. These products were not treated as upgrades of their earlier releases, and owners of their original WordStar and dBase II were not offered any special discounts toward purchase of the newer product. In line with this practice, Valdocs + can be considered a new product with new features, and an entirely new concept of support from Rising Star Industries.

The marketing approach by RSI is focused on continuing support to customers. They plan upgrades every 60 days, have a money back guarantee for repeatable bugs which they cannot fix, and will be holding RSI Roadshow workshops around the country.The upgrades are to continue until the items promised are complete.

A New (True?) Valdocs

Valdocs with eight functioning windows, Valdocs with Mailmerging? Valdocs with a database sorter? Valdocs with document-long macros? None of these features were promised by Epson in the May Valdocs 2 upgrade release, but all are included in the September 6 Valdocs+, the first of a series of future Valdocs updates and modules being offered in a package deal to registered owners of Valdocs 2 by Rising Star Industries.

How does + compare with Valdocs 2? How does it run? The two hour demo for my users group proved PLUS was a PLUS and will be a MUST for dedicated Valdocs Users.

Here's what the users loved the most:

★ Control V gets you a menu of 8 full screen document windows, one of them a Sidekick style notepad, you can access by touching CTRL N. It lets you jot down things while in the middle of doing something else in another window. To return to your original document you just touch CTRL N a second time. The best thing about the windows is the "form". You can create forms and use them in different (or all) windows.

★ You should take a look at the CTRL Q menu. There are options to reformat your document, configure the editor, and define a form. Once defined, your forms will always be there whenever you use the disk it's stored on. You can block store the contents of the view window restoring the form itself - a great disk-saving device. You can't throw away the form. That is as long as you want it. The Configure option lets you select a time-delay save option. You can select: 1, 5, 10, 15, or 20 second delays before data is saved to disk, or you can turn it off all together. Twenty seconds is fine if you have a hard disk drive, if not, you might set it to less of a delay. Another option in the Configure option is called AUTO FONT PROPAGATION. Select NO, and when you go back in your article to do bold or italics (etc.) it will not carry down throughout the rest of the document. DEFINE A FORM allows you to define up to 8 different forms for use with the editor.

★ All regular modules are, for the first time, fully integrated into the system. Both the spreadsheet and draw program charts will pass into the editor document to the place you left the cursor (you'll get a prompt to change disks in the process). The load disk in the new system is strictly for booting, and contains only the setup systems.

★ **WARNING.** Don't use a CTRL C to short cut the reinitialization of the Valdocs 1 system after you have been using Valdocs+ or you can blow your index temporarily, or get a "Bad" Terminal reading in the setup. If you goof and do it anyway, just reset your computer, go back into Valdocs+ and go through the re-initialization again.

★ If you go back and forth between Valdocs versions andCP/M, it is best to save your DEF KEYS to disk, because they're stored in the same section of Epson memory CP/M uses and each time you run a CP/M program the DEFKEY will be overwritten.

★ Valdraw and Valpaint also offer "pass to editor options" but it requires the new Valdraw / Valpaint system disks which were several weeks away from distribution at this printing. Pre-September versions of Valdraw and Valpaint will not run in Valdocs+ until you copy Setup, Index, Menu, and TPM files from the Valdocs+ run disk to them.

★ The long missing mailmerge capability has arrived. You create your merge letter in Valdocs View window, define it as a form, and then run a data file using a Rising Star - defined def key which the Valdocs+ manual offers. It includes an "endless loop" function that employs the number 2 key on the keypad and the stop button ends mail merge. The preliminary manual is not clear on the merge process, perhaps the final one will clarify the process.

★ You can get an index of DEFKEY from your disk by touching CTRL U and retrieve.

★ If you have a dBase II or Friday database, you can store the data file as an ASCII delimited file (for instance in dBase at the . prompt you COPY TO TEMP DELIMITED WITH '') then, to bring the data file into Valdocs+ you use the CONVERT program on the new utility disk. It works simply and easily.

★ There is a new sort utility on the Valdocs+ RUN 1 disk which will sort your defined cardfile in ascending or descending order, and do it by any field you want including the zip code. The Cardfile program is looking more like a genuine data base. Sort can also be used to sort non-indexed TPM files and the aforementioned data files brought in from CP/M data base programs.

★ Want to bring your old Valdocs version 1 documents into Valdocs+? Did you hate the complicated Valdocs 2 conversion procedures with all the disk swapping? In Valdocs+ it can take as little as a minute or two for a simple one or two page letter to be converted. All you need to do is insert your old Valdocs disk into the right drive (after an appropriate CTRL M), call the file you want into the Valdocs+ editor as a non-indexed document through CTRL Q, and *the editor does the conversion for you.* Just like that.

★ Changing margins will demonstrate the new speed of reformatting. Re-store and name the file immediately however, don't try to go to the bottom of the document until after you bring it back, for Rising Star hasn't solved the scanning problem yet. One nice feature is that you don't need to convert any Version 1 documents until you need them in Valdocs+. You can do it any time.

★ The spreadsheet recalculation is faster, and lets you "freeze" the parts of the formula you haven't changed before recalculating. And you can now print out your work sheet formulas all by themselves.

★ Those working with ASCII files will be pleased with the new options under Quirks, STORE A NON-INDEXED FILE. There are four options for storing: <V>aldocs, <L>inear Valdocs document, <P>age-formatted ASCII, and <T>ext only ASCII. The Linear option removes the control codes which kept spell checkers from working. You can now use this option, and continue to keep the special formats (bold, italics, etc.). Another addition to the Look for menu (CTRL L) is the ability to look for and delete hard carriage returns.

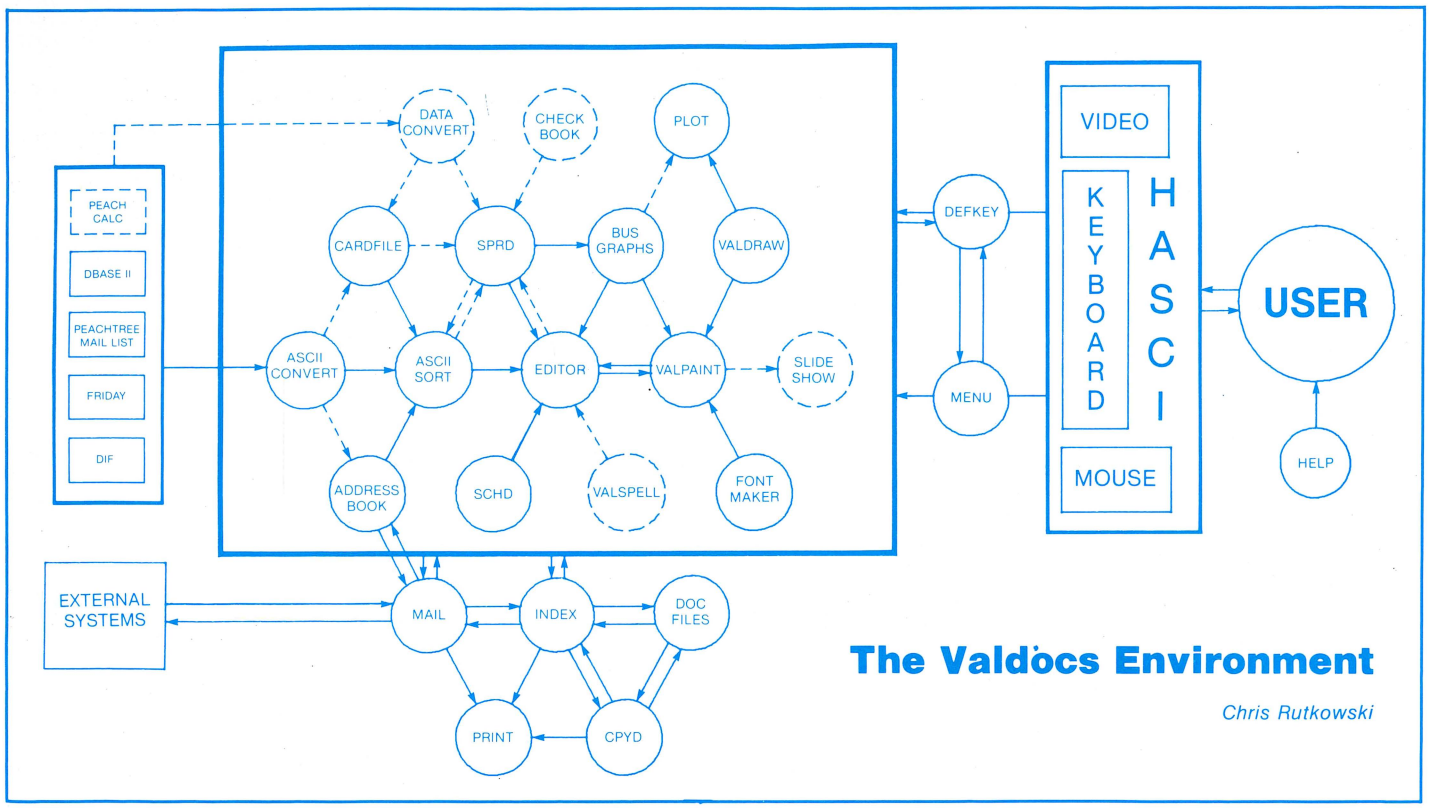
★ We found a problem with our Revision B CR-103 modem card and Valdocs+. The card would dial but not connect.

Next month is the Annual EpsonConnection Resource Guide, but in January we will have an indepth look at the intricacies of Valdocs+. ■

Rising Star Industries Announces its

VALD

The Programmable



The Valdocs Environment

Chris Rutkowski

Valdocs® started out as an impossible dream, described in the September and October 1982 issues of BYTE magazine. Then Valdocs 1 proved integration and ease of use could co-exist on a micro. Valdocs 2 added features and provided a platform upon which to build. And finally the dream becomes reality for most users: Rising Star announces *Valdocs+*.

Valdocs+ offers *data integration* — the ability to pass data among modules. It offers *faster operation* in both the editor and spreadsheet. And it offers a feature never before seen in an easy-to-use integrated system: *programmability.*

Do it yourself Mail Merge

Using the Valdocs Editor's sensational new "Multiple Lookfor and Replace" capability, data from the Addressbook and Cardfile (as well as data from Peachsoft's List Manager, DIF files, DBASE II and FRIDAY) can be sorted and merged with normal text documents. And because the data is actually merged into the editor, documents are fully reformatted, can be micro-space justified, make full use of fonts, and can be combined with graphs, charts and illustrations, etc. Most amazingly, *Mailmerge,* usually a separate program, is actually programmed *by the user* as a DEF-KEY macro. This is only a sample of the programmability that will be introduced in Valdocs over the next few months.

Graphics in Text

Want to insert a business graph, spreadsheet or painting into your editor document? Easy. With the picture on screen, press the EDIT key. Pass spreadsheet data to the editor? No problem. Press EDIT. It is no more difficult than chaining from one module to another. As an example of a useful application, use PAINT to make a copy of your company logo, then put it at the beginning of one of the Valdocs editor's 8 *default documents:* instant letterhead! Available *anytime* with only 4 keystrokes.

Valdocs: More than just a program.

Valdocs is more than a program— it's a *programmable environment.* In the accompanying chart you can see, for the first time, the planned scope of that environment. Solid lines represent modules or integration paths *already* present in Valdocs+. Dotted lines represent modules and integration paths which will be completed and implemented during the next few months. Look it over. *NO integrated system offers as much versatility as Valdocs+.*

First Independent Release of Valdocs®

OCS+™ Environment©

Software Buying Simplified®

In celebration of the release of Valdocs+, Rising Star is launching the most innovative marketing program ever seen in the software industry — Software Buying Simplified.

The entirety of the Valdocs Environment as it now exists, and every enhancement and improvement depicted in the chart is available for the low package price of $349.

There are *no* strings attached. No extras. No handling or update charges. *Every* new or revised module we develop, *every* new program, *every* new feature and *every* bit of documentation written will be sent out to all registered Valdocs+ users at least once every 60 days until the Valdocs Environment as outlined for the QX-10 and the QX-16 are *done.*

Guaranteed enhancements include *ValSpell* (an integrated spell checker and thesaurus), *ValCheck* (an electronic checkbook integrated with the Spreadsheet), *Slideshow* (for presentation graphics), Valpaint 2 (with built-in Hershey Fonts), *Valdraw 2* (greatly improved accuracy and a host of new features), plus much more in the way of Editing, Spreadsheet and integration features.

You even have options on how to purchase

First, as described above, you can purchase the entire Valdocs Package for $349.00 (without a mouse) or $449.00 (with a mouse). In addition, anyone buying this package will receive a $49.00 discount if they have already bought Valdocs 2.

Attention Valpaint/Valdraw owners!

If you have already purchased Valdraw and Valpaint, and sent in your warranty registration card, you can purchase the entire Valdocs package as described in this Ad for a one time fee of $49.00 to cover the costs of media, distribution and documentation. It's our way of saying "Thanks for the on-going support."

Second: Summer vacations or back to school expenses left you a bit short on cash? We've got you covered. Now, for the first time you can make your software purchase on the *installment plan.* Be sure to talk to your sales representative at Rising Star Industries for further details.

Third: You can always continue to purchase our products as you have in the past, a module or program at a time. Bought this way, Valdocs+ (without Valdraw, Valpaint, Dictionary or other planned enhancements) is available for only $249.00, with a $49.00 discount if you have already bought Valdocs 2. Prices of other products will be as published elsewhere.

A MONEY BACK GUARANTEE on Applications Software!

VALDOCS' MONEY BACK GUARANTEE: If you find and report a reproducible bug* in VALDOCS+ within 90 days of purchase and we cannot fix** it within 60 days of your report, Rising Star will refund your money upon request.

*A bug is defined as any deficiency in the program code which results in that program failing to perform a function for which it was designed, in the manner intended by its designers. Limitations inherent in the computer or peripheral hardware will not be considered bugs.

**A fix is defined as code corrections which result in the program performing the function for which it was designed in the manner intended by its designers.

All reports must be made in writing to Rising Star's Customer Services Division and must be sufficiently detailed to allow the bug to be reproduced by Rising Star personnel.

This guarantee applies to Rising Star Industries' software products which are part of "VALDOCS+" which are licensed for use directly from Rising Star between September 1, 1985 and 1 March 1986 and supplements the terms of the license under which you acquired the software. All other terms and conditions of the software license remain in full force and effect.

This guarantee is activated upon receipt by Rising Star of the signed warranty registration card you receive with each Rising Star product.

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To order, or to obtain more details on these products and packages, call any Rising Star number: 213-373-9112, 213-378-9245, 213-373-9127, or 213-375-1324.

NOTE: Rising Star Industries is pleased to announce that we are now accepting the American Express Card in addition to VISA and Master Card.

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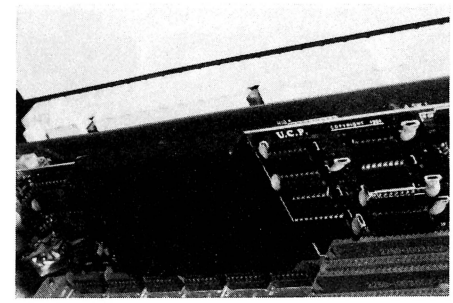
Rising Star Industries,
25500 Hawthorne Blvd,
Torrance, CA 90505

QXSM-1

Speech & Sound Synthesizer



by Allen Howell

SPEC SPOT

Product: QXSM-1
Type: Speech & Sound Board
Computer: QX-10/16
Required Peripherals: External speaker with RCA connector jack.
Price: $319.00
Ease of Use: Fair
Performance: Good
Documentation: Good
Summary: For the hobbyist who has everything.
Manufacturer:
Universal Computer Products
P.O. Box 4229
Irvine, CA 92716

Although the QX-10 is by far the best CP/M machine produced today, there is nothing extraordinary about a stock QX-10's speaker or sound hardware. The QX-10 does, however, have some capabilities that most other CP/M machines lack: it can be programmed to play individual notes, and it does have an external volume control (located in the back of the main unit next to the printer interface). One should also be thankful that the default sound produced by the speaker is a pleasant one, and not a deep "fog-horn" sound such as that generated by the Sanyo 550 series.

For most users, the speaker functions as nothing more than an "attention getter" when your computer needs a disk changed, or when you enter erroneous data into your accounting program. For the user who would like to produce an elaborate game with sophisticated sound, or use a QX-10 as an electronic organ or music synthesizer, there isn't much hope in the existing hardware. Fortunately for these users, there is an alternative...

The QXSM-1 board can enable your QX-10 to emit such noises and sounds that could rival many of the "big-time" arcade games which cost thousands of dollars. The demo disk that accompanies the board contains a program called QXNOISE which emulates the sound of an explosion, chimes, a siren, and a laser (which sounds like a shrieking missile).

Although the sounds are impressive, the most significant feature of the board is it's ability to simulate speech. The speech capability encompasses these features: an unlimited vocabulary; speech that is fast or slow, monotonic (sameness of tone or sound) or with intonated (the rise and fall in pitch); words can be spoken or spelled by letter; and pronunciation of punctuation, symbols, and numbers.

Another program that comes with the demo disk is TUTOR1, which allows the QXSM-1 to talk back to you. This program contains 3 modes of operation: pronunciation by character, by word, or by line at a time. The "line at a time" mode is probably the most entertaining. This mode allows you to enter a sentence at a time, press RETURN and have the QXSM-1 say *exactly* what you have typed in. The QXSM-1 speaks phonetic English, not "real" English, thus, it will mis-pronounce such words as "robot" (the QXSM-1 pronounces it as "rawbot") and it is up to the operator to enter the words the way they should be spelled, e.g. "rowbot". Another example of an English language "flaw" is the word "read". Is it pronounced as "red" or "reed"? That is determined by factors more complex than the board can handle. The QXSM-1 cannot detect how you really want it pronounced, so if you mean "read" as in "reed", you'll have to enter it into the QXSM-1 as "reed" (this brings to mind one of Murphy's Laws of computer programming: A computer does what you tell it to do, not what you want it to do). To make the board say what you want it to is not too difficult as long as you spell the words as they sound, and not how they are supposed to be spelled (apologies to English teachers).

Other features of the QXSM-1 include an external volume control, software controllable volume control (15 levels), 63 voice pitches, 400 language rules built into the Text-to-Speech algorithm in ROM, six channels of programmable sound generators, and the ability to produce sound and speech simultaneously.

"Is the QXSM-1 worth $300?" That depends on what you intend doing with it. If you are a typical user who would like to use the board for more practical purposes, such as assisting the hearing impaired, echoing documents back to you as you manually proofread them, or as a speech tutor, then you may find the QXSM-1 impossible to justify. Why? The system provides only two DEMO programs. Special application programs must be programmed first, so if you can't or don't want to program, then all you have basically is an expensive toy.

So, unless you are a programmer or you know someone who can program for you, I cannot recommend this product for you. The two demos that come with the software are very entertaining for about 10 minutes, but the excitement soon wears off.

If you are a programmer/hobbyist who is looking for something new to tinker with, the QXSM-1 should provide you with hours of enjoyment and the opportunity to amaze and baffle your friends. ■

Jim Bell Discusses The SemiDisk

The writer, himself an Epson and Valdocs user, recently spent some time with Jim Bell, President of SemiDisk Systems in Beaverton, Oregon. The following is an edited transcript of their discussion.

by David Robinson

QUESTION: How did you get into electronics, Jim, and how did SemiDisk get started?
BELL: I was originally interested in analog electronics in high school; I didn't become interested in digital electronics until my second year of college. I went to school in Massachusetts, at MIT and graduated in 1980. About the end of my first year at school I became interested in digital equipment, and built a single board computer -- actually nothing more than a controller. The next thing that I did was to build my own computer, the BELLYACHE I; I still use it today. It's basically a Z-80 machine with all of the standard accouterments . . .
QUESTION: As I recall, though, there are some pretty special things about BELLYACHE.
BELL: Yes, I always designed it to be fast. It has a clock speed of 12 1/2 Megahertz -- about three times as fast as the Epson QX-10 processor.
QUESTION: So, out of this technical background, SemiDisk Systems got started. How did that happen?
BELL: I got a job with Intel in 1980, and was immediately put to work with RAM [chips], making test programs to ensure that they were working properly. I noticed that there was a lot of RAM in the world, and that prices were dropping. I knew that one day RAM would be cheap, and I knew that there must be some use to which that RAM could be put, to make a computer run better. Rather than using slow floppies, I thought that they could be replaced. But you can't just put more RAM into a computer. If a computer doesn't know that it has more memory, it won't use it. But there is a device that can be arbitrarily larger than standard memory, and that was a disk. So the only way to benefit a computer by sticking 3 megabytes in it was to make it look like a disk, not like the main memory. At that point I got to the problem of how to address that memory. It wouldn't be like the bank-switching that some people use. In the early days of the S-100, memory wasn't standardized; manufacturers barely talked to one another, and it was a miracle to get two boards to talk to one another. If you put something into main memory, even bank switched, you're likely to interfere with something. We had to make a product that would run on 90% or more of the systems out there. The way to do it was, we found, (this was actually my invention) to make the device look like I/O ports. The reason for this was that I/O ports are standardized, and most I/O's are free, so you can address them fairly easily. At that point, I built a board for my own computer that consisted of 16K RAM's stacked to the sky on this one board.
QUESTION: An original work of art?
BELL: You might describe it as that. I made it all accessible by the I/O ports so that it didn't interfere with anything else, it did its own refreshing, and handled it all quite well. I didn't have any battery back-up at the time, (that was something that I added later), but it did the job. And what was particularly interesting was that every time that I cranked up the clock speed, in effect the disk went along with it. Up until that time, it wouldn't matter if you had a 12 meg processor; you still had floppies. It was like tying a boat anchor to a sprinter.
QUESTION: You saw the floppy disks as being the weakest link in the micro-computing chain?
BELL: Yes; they still are in many cases. There are very few programs running today that are truly microprocessor limited. Many of them are disk limited -- especially some of the newer programs. Spreadsheets, for example, that like to go to disk. That's not a problem, that's not a criticism of them, because in effect they're very forward-looking. They use the resources of the computer. But this is a problem, because they're slowed by the speed of the disk device. And that's something that you've got to get rid of. Things are going to improve as we get better technology.
QUESTION: SemiDisk Systems emerged when you took this idea that would be technically called a disk emulator and went into commercial production with it.
BELL: Exactly. The first product was for the S-100 bus.
QUESTION: What year was that?
BELL: Late 1981. There was no IBM PC at that time, and there was no other computer in nearly that volume except the Apple, and I wouldn't have built anything for the Apple.
QUESTION: This was a while before "user-friendly," obviously. If "friendliness" didn't really exist in early 1982 at the beginning of the IBM PC revolution in micros, how did you end up making the connection with Epson and Valdocs?
BELL: Well, we started with the S-100. The second and third

models were the TRS-80 II and the IBM PC. Obviously anything built by IBM is bowed to by everybody, and we had to do our bow also. And that's been a fairly successful product. I knew some people locally who were familiar with the QX-10, and several things occurred to me when I saw the machine. First, it was an extremely well-designed product, far more so than practically any that I had seen. The quality of the PC board manufacturing was superb. It looked good, and I didn't see anything obviously wrong with it, except possibly one thing: the floppies were as slow as Christmas, and not nearly as much fun. In that case, the SemiDisk is the ideal device to put on, because the rest of the computer won't be holding you back in terms of quality. You have only one hurdle to overcome, and that's the speed of the floppies.

QUESTION: You thought the QX-10 would be an ideal candidate for a SemiDisk just because of the hardware. Even the worst opponents to the Valdocs concept concede that the hardware was superior, especially at the time. And there hasn't been significant change in the design since 1983?

BELL: The PC boards used fine line technology, which is unusual in PC board manufacturing. You don't usually see that.

QUESTION: Particularly in 1983?

BELL: That's right. I'm sure that now they're going to have to do that for compaction, but at the time that was really a new level of technology.

QUESTION: Now when the Epson first came out in version 1.xx of Valdocs, there was no real software support of SemiDisk in Valdocs -- there was no way for Valdocs to see that a user had a SemiDisk, which meant that you had to figure some way to manually boot Valdocs out into the SemiDisk and get it to run. Right?

BELL: Well, to tell you the truth, one of the reasons that we've been waiting for Valdocs 2 is that while we had a driver that would run under TPM-II, it was sufficiently buggy under Valdocs 1.18 and 1.19 that we wouldn't release it. It was developed with Rising Star, but it wasn't suitable for selling. Now that Valdocs 2 is out, we've gone from a rags to riches sort of compatibility. Before, we weren't compatible at any speed; now, the drivers are built right in. So it's as simple as can be; you just plug the board into the bus (into one of the expansion slots). Up until now we've been emphasizing compatibility with CP/M, since we could use the same drivers that we were using with other SemiDisk devices. We've tried to make our devices as similar to one another as it was possible to do.

QUESTION: When you say that Val 2 has the drivers built right in, exactly what does that mean? Let's say, for example, that a person goes out and buys a 512K board. What portion of Val 2 can they expect to operate on a 512K board?

BELL: O.K. Physically, all you have to do is to plug in the board. It's about as simple as can be -- what I would call self-explanatory. As for the software that you can plug in, that's something else. Of course, we have the two capacities, the 512K, and the 2 Megabyte. 512K might be a little bit squeezed. The reason for that is that there are a lot of utilities on the Load-time and Run-time disks. And if you tried to load in both of them, you end up at nearly 800K. That's a lot of storage, and it won't fit on one of the smaller boards. But most of that really isn't necessary. The editor is probably the best thing --

QUESTION: The indexer --?

BELL: Yeah, and a few others are probably the first ones that I would choose to put in. You want to leave a couple of hundred K for data. I think that, in effect, 512K is good for the beginner, but eventually a person is going to want to upgrade to 2 megabyte. 2 megabyte gives you everything that you could possibly dream of wanting. You could put every Valdocs disk that they give you on it, and still have 1 megabyte left for whatever else . . .

QUESTION: But if you put in a 512K board, does that autoboot Valdocs? Will it automatically send certain files over into the 512K board?

BELL: Yes, that's right.

QUESTION: Which modules go over there? Let's say that you put in your loader -- clearly that gets things up to speed and sticks things out into RAM -- what ends up there? And in reference to the 512K board: Is that 512K in addition to the 256K of the QX-10, or is that in place of it?

BELL: It's not really a substitute. It can be used as you see fit. It could be a system file and a data file; you could put just the system, or just the data on there, if you wanted. If, for example, you worried about loss of data, but you wanted all of the overlays of your operating system on the SemiDisk -- because you wanted to be able to speed up the editor or the spreadsheet -- you could tell the disk emulator to be a system disk. The data disk would be a floppy. Every reference to the system disk would go to drive M (default for the SemiDisk), while your floppy would remain as drive B. What that would allow you to do would be to put every overlay you're ever going to want to use on drive M; and you still have 376K of data on your floppy. It wouldn't interfere. If you got a larger capacity board, either 2 half-meg boards, or a 2 meg board, suddenly it frees you tremendously, because you don't even have to make the decision. You can bring everything into the SemiDisk, and run off the SemiDisk almost exclusively.

QUESTION: I'll ask a question that I think that many people would ask. When we talk about "autoboot," how do you designate what goes into SemiDisk, and what doesn't? Do you have to put together a custom disk that will autoboot?

BELL: Ideally, for a large number of people, they're going to want a certain number of files to go into the SemiDisk. They'll want to make a decision on what should go into the SemiDisk, and what shouldn't. Probably they'll want to put all of the files that they normally use on, say, a single floppy, then copy that when they turn on their machine, to the SemiDisk. They

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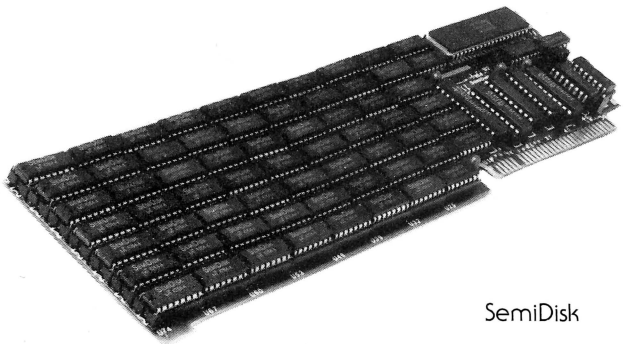

SemiDisk

would just start the copying operation, and most likely would walk away for however long it takes and forget about it. By the time they came back, it would all be transferred over to the SemiDisk.

QUESTION: In other words, using CP/M, you're going to pip it out into the SemiDisk, and then you're going to come back with all of your systems ready to run an ramdisk speed.

BELL: That's right. One of the reasons why it will be more and more important to have the battery backup, -which we also supply-, is that it's nice to keep that data around day after day, and week after week -- especially on the larger boards. The battery backup will let you keep that information all the time. That can cut your start up time to seconds, as opposed to a few minutes. And I think nothing of keeping a SemiDisk on a battery backup; there are no moving parts, the parts are going to go forever, or relatively so, so you're not going to hurt it one bit. So that's really the better way of handling it.

QUESTION: Let me see if I can summarize this. My understanding is that if you own a 512K SemiDisk, don't make any choices at all, and load the Run-time disk of Val 2, it's going to stick some of the obvious ones onto the SemiDisk -- the editor, the indexer, and so forth . . .

BELL: Yes, it will . . .

QUESTION: . . . and leave you with some data space?

BELL: It'll leave you with a LOT of data space.

QUESTION: So if you want to buy a SemiDisk, and don't really understand how to configure a working disk, Val 2 will do some of it for you automatically?

BELL: That's right.

QUESTION: That really is high compatibility between Val 2 and the SemiDisk.

BELL: You see, when Valdocs 2 is turned on, it tests to see if a SemiDisk board is out there. In effect, it tries to write to a board, and if it doesn't have a board there to write to, it just assumes that it doesn't have one. When it detects a board, it uses it for future operations and loads three modules.

QUESTION: I believe that it loads the editor files and the indexer overlay?

BELL: That's right --

QUESTION: The obvious ones . . . the ones that most people use. What's that old figure? 70% of all people who buy micros want word processing . . .

BELL: That's right.

QUESTION: But if you wanted to configure a special working disk, all you would have to do is use the batch file copying feature of Val 2 to make a collection of utilities of, say, between 350K and 370K of modules -- if you wanted that many -- and have 150K or so left over for data files.

BELL: That's right.

QUESTION: One of the things that I've noticed about Val 2 is that it's memory hungry. You can put together a very small file of a single line's length in the Val 2 editor, and you don't have a 2K disk file -- it's more like 6K or 8K. Part of that is the nice "user-friendly" environment that tags along with you. . .

BELL: Yeah, it has to store a lot of things like fonts and sizes and so forth . . .

QUESTION: As for cross-referencing -- let's face it, once you get into SemiDisk in Val 2, isn't it true that you're going to want to move beyond 512K if you've got any kind of files at all?

BELL: That's true. We think that that's going to be important in the future. And of course as memory prices decline, that will be the more economical thing to do. To give you an example: when we first began selling SemiDisk on the S-100 bus in early 1982, we were selling 512K for $2000. The most recent prices now are $595 for 512K, so as you can see, the factor of decline is greater than three. I anticipate that over a similar period of time in the future, things will drop in a similar manner.

QUESTION: That reminds me, you had a price break.

BELL: That's right; July 1. We dropped the price of a half meg to $595; that was from $799. The 2 meg went down to $1795, which was a drop of $700 from the old price of $2495.

QUESTION: A couple of questions occur to me here. First off, what's the maximum amount of SemiDisk memory that you can put in a QX-10? Aren't there some limitations?

BELL: Well, the QX-10 has five expansion slots, and theoretically, with the 2 meg boards, you could have 10 megs. Under CP/M we've chosen to go with a limit of 4 boards and 8 megs. I'm not really sure in Val 2 whether RSI has a limit of 2 megs or 8 megs with the drivers that they've written. If it's only two, I'm sure that they'll modify that for 8 megs. The SemiDisk is designed to be a high-speed disk drive; I personally run on 6 megs of SemiDisk, but I can't honestly say that I really use more than 2 1/2 megabytes of that.

QUESTION: I've heard that there might be some power consumption limitations on the boards - that the QX-10's power supply can only handle so many of the SemiDisk boards.

BELL: I've heard of a limitation of 2 megabytes, but that was based on the 512K boards. Interestingly enough, the power consumption of a 2 megabyte board and a 512K board are almost identical. Same amount of space, same amount of heat, same amount of power drain. I wouldn't think that plugging in three or four 2 meg boards would be any problem. In addition, with our battery backup unit, the entire power consumption of the board is supplied by the battery backup unit, so the only question is the heat. These boards only consume about 0.5 or 0.6 amps of current at about 5 volts. That's about 2 1/2 watts; an extremely small amount of current.

QUESTION: Your battery backup does allow you to leave your machine on full-time.

BELL: Interestingly enough, you don't have to leave your machine on all the time; with the battery backup, you can turn your computer off. The SemiDisk will continue to be powered, but the bus is dead. The machine doesn't really have to be on, because the power consumption is so low that mere convection is enough to carry all of the heat away.

QUESTION: How much does the battery backup cost under your new pricing structure?

BELL: It's still $150. We're trying to re-designed it right now to cut the cost. We're limited now, because we use a large capacity battery that will run for 8 or 9 hours on its own. That's good for some uses, but it's possible that we might switch to a smaller battery that costs less.

QUESTION: This is all significant to many Epson users; the SemiDisk with battery backup is hard to crash, and Val 2 files are hard to lose. The battery backup makes sense. But there's the other question; the SemiDisk versus the hard disk. A fair number of notes have gone back and forth on EpsOnline, discussing this. What do you do? You've got your QX-10, you're outgrowing your floppies -- which direction should you go? What sort of person needs the SemiDisk more than they need the hard disk?

BELL: As the manufacturer of SemiDisk, I can't be expected to be totally unbiased here. Let me first tell you who DOESN'T need a SemiDisk. That's a guy who has about 30 megabytes of on-line data files. He needs to store the phone book of a small city; he needs access to 100,000 names, where each of those names is associated with 200 bytes of information. It so happens, though, that those people are not very common. Most people who say "I need a hard disk," are really saying

Continued on page 24

Software Critics Agree

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The Critics on SmartKey

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- "Works like a charm..." *MicroSystems*
- "A must for every computer..." Peter McWilliams, author *The Word Processing Book*
- "SmartKey is a utility I recommend... ...The result is less frustration and greater speed and accuracy in entering data." John D. Yoder, PhD *Reviewer — Epson Connection*
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QX-PC2 OPTIONS GUIDE

Description	List	Prices
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256K QXPC2	$ 670.00	$419.00
384K QXPC2	$ 895.00	$589.00
512K QXPC2	$1045.00	$649.00
128K Aux	$ 249.00	$189.00
256K Aux	$ 399.00	$312.00
Ram Software	$ 39.00	$ 36.00

192K	Standard MSDOS co-processor card.
256K	Standard card with more memory.
384K	Standard card and attached memory.
512K	Standard card. Maximum expansion.
128K Aux	128K Auxiliary card adds memory.
256K Aux	Auxiliary card adds memory.
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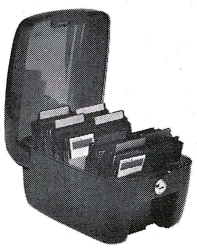

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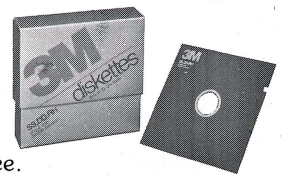

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Continued from page 21

something different. They're saying, "I don't want the slow floppy," or "I want the speed of a hard disk." Whenever hard disks were mentioned a few years ago -- true, they have a large capacity -- the kicker for the hard disk has always been speed. A hard disk spins faster than a floppy; the track to track step time is faster than a floppy; the data transfer rate is 10-20 times that of a floppy; so when they said "Oh I want a hard disk," what they were saying was, "I want a faster computer." Now the SemiDisk cannot store 30 megabytes of data on-line.

QUESTION: Not yet?

BELL: Not yet. We're working on it. But it CAN go faster than a hard disk; a lot faster . . .

QUESTION: How much faster?

BELL: Well, benchmarks are hard to come by. You see, a SemiDisk is totally random access; every sector is as far away as every other sector. You simply have to write to the thing and read back. It's electronic; there's no such thing as a far-away sector. With a hard disk, on the other hand, there's a big difference between a track that's near the head, and one that's all the way across the disk. If you run a program that does a lot of disk access, including opening and closing a lot of different files, you end up moving that disk head back and forth. That is the real slow part of a hard disk. It may look fast to you, but every access might be a tenth of a second, or a fifth of a second. And those accesses can add up very quickly. With the SemiDisk, on the other hand, every access is equally fast, not being mechanically limited, and nothing's wearing away. A hard disk can't really be used a lot. It'll wear down. There are some people who hardly use anything, so they don't use their hard disk to the point where it wears out. The ones who really use them may experience trouble after a few months. And with a hard disk, if it crashes, it's unlikely that they're going to be able to get the data out -- it's probably all lost. A SemiDisk, on the other hand, is not mechanical. It's not only extremely fast, but consistently fast. Everything is smooth, and comes out at exactly the same speed. And it's not going to wear out. So who needs a SemiDisk instead of a hard disk? A person who, it turns out, really needed a hard disk for the speed, and not for the 30 megabytes of storage. A person who wants to be able to do on-line work, and doesn't want to sit there and wait for his computer to do what it ought to be able to do quickly. Most people don't need more than a megabyte or two megabytes of storage. A hard disk isn't necessary for such people.

QUESTION: So what you're telling me, then, is that the SemiDisk is really going to be a better acquisition for most Epson owners than a hard disk?

BELL: Yes, I think that that would be true. And keep in mind that later on, when you get a hard disk (if you decide you need one), you can use a SemiDisk with it. In fact, if you want to minimize the amount of wear on your hard disk, you could use the SemiDisk as a kind of temporary high-speed storage that's even faster than the hard disk. Bring things to the SemiDisk from the hard disk, make your edits, then you backup what you need and leave all of the temporary files that you don't need on the SemiDisk -- they'll go away when you turn the power off. The SemiDisk eliminates the kinds of access delays that slow a computer, and helps it to become as fast as it can be. Once a SemiDisk is put in, the only delays that you have come from the microprocessor crunching data.

QUESTION: So the Valdocs user, who is in a memory-hungry environment, who is in a disk access-intensive environment, is going to reap some very significant benefits from the use of a SemiDisk?

BELL: Yes -- the person who needs the speed to counteract the growing list of features that Valdocs provides, shouldn't be sitting in front of his computer, ripping his hair out and wondering why he ever bought it and all its nice features. This also makes it easier for the programmer, since he can now do more techniques and offer more features without boring the user to death . . . ■

MS-DOS

RamDisk and Printer Buffer

by Allen Howell

SPEC SPOT

Product: Ram Disk
Computer: QX-10 w/QX-PC2 Card
Price: $36.00
Ease of use: Excellent
Performance: Excellent
Documentation: Fair
Summary: A must for the serious MS-DOS user.
Manufacturer:
Titan Technologies, Inc.
310 West Ann Street
Ann Arbor, MI 48104

At last, the users of the Titan QX-PC2 card may utilize the QX-10's extra memory banks as a 169K Ram Disk.

The software package consists of an MS-DOS data disk with the QXRAM.SYS program and a small 6 page manual. This manual contains documentation for setting up both the Ram Disk and a printer buffer, even though both are sold separately.

Installation of the software is accomplished easily, as long as you are familiar with MS-DOS's EDLIN.COM program, or another text editor. COPY the QXRAM.SYS program from the data drive onto your MS-DOS boot disk, and alter the CONFIG.SYS file so that your MS-DOS will recognize the Ram disk upon a cold boot.

This is explained in the manual, however, the manual assumes you are already familiar with EDLIN. Users who may not know how to use an MS-DOS editor may find this step of the installation very frustrating. The manual directs you to enter this line in the CONFIG.SYS file: "device=qxram.sys". For those of you who have not used EDLIN, here is the procedure for inserting the commands:

The System says this:	You type:
A>	EDLIN CONFIG.SYS <CR>
*	I <CR>
1:*	DEVICE=QXRAM.SYS <CR>
2:*	<CTRL-Z> <CR>
*	E <CR>

That's all there is to it. Now, whenever you boot your system with MS-DOS, it will automatically initialize the QXRAM.SYS program, and create a 169K Ram Disk assigned as drive C:, ready for you to use.

Obviously, the first thing to be noticed about the new Ram drive is the speed. As a small test, we wrote a batch file to create a series of directories 10 levels deep and ran it on a floppy drive as well as the Ram disk. It took an astounding 3 minutes, 25 seconds to complete the batch program on floppies compared to a mere 14 seconds with the ram disk. Typical program loading and data file accessing is faster with QXRam, but not as dramatic. Program loading and data accessing is as fast on the Ram disk as it is on the IBM machine utilizing floppies.

It does not matter how much memory you have on your QXPC2 card since this software is utilizing the QX-10's main system memory. The software uses 192K (3/4 of the 256K of the QX-10's memory). The main bank is still being used by the Z80, however, approximately 25K (of the 192K) is used for typical drive housekeeping purposes e.g., disk formatting, directory space, etc.

If you use MS-DOS frequently, especially for data base purposes, then I highly recommend this product. ■

SPEC SPOT

Product: Printer Buffer
Computer: QX-10 w/QX-PC2 Card
Price: $36.00
Ease of use: Good
Performance: Good
Documentation: Fair
Summary: An inexpensive alternative to a hardware buffer.
Manufacturer:
Titan Technologies, Inc.
310 West Ann Street
Ann Arbor, MI 48104

A printer buffer is usually a hardware unit that is interfaced between a computer and a printer. This unit will receive printer information just as fast as the computer will send it, then the buffer will trickle the information to the printer at a speed the printer can accept, thus, freeing the computer to perform other task while the printer is in operation. Just as any computer device, printer buffers are limited to the amount of information they can hold (16K, 32K, 64K, 128K), and the more they can hold, the more expensive they are.

Large mainframe systems have used software printer buffers for years, however, this concept is relatively new to micro's. A Micro, in the early days, didn't have the capacity to dedicate part of it's own processing memory for use as a printer buffer. Now with the 16 bit computers that can access 640K+ of memory, software printer buffers are definitely feasible, and cheaper.

The Printer Buffer software package contains the initialization program, and several utilities to monitor and control the buffer you have created.

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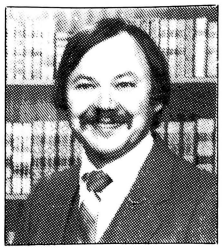

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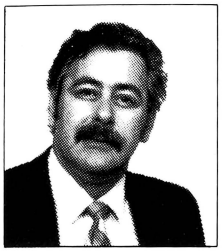

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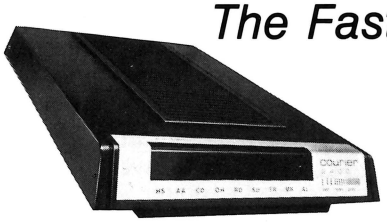

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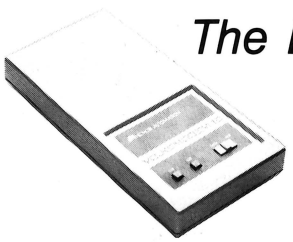

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First, you must decide how much memory you wish to allocate to your printer buffer in increments of 16K. Note that the memory you allocate to your buffer will be subtracted from your QXPC2's memory, for example if you have a 192K QXPC2 card and you wish to create a 64K printer buffer, then your QX-PC2 card will be down to 128K for system and program operation.

Installation of the buffer software is similar to installing the software for the QXRam disk. The only difference is the instruction line that is inserted into the CONFIG.SYS file of your main MS-DOS boot disk. You need to define the size of your buffer within this instruction.

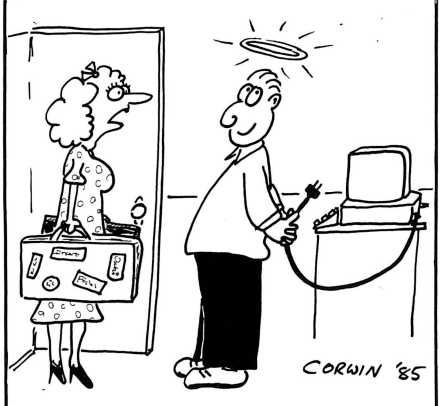
After installation is complete, re-boot your QXPC2 card, and when the A> prompt returns, use the CHKDSK utility to confirm that your system has acknowledged the buffer. This can be determined by the amount of free memory left in the system.

To test the buffer, a GWBASIC program was created. When the printer started printing, it was placed OFF-LINE. As expected, the BASIC program completed its execution after a few seconds without pausing for the printer.

As mentioned earlier, three utility programs also accompany the buffer software: PURGE.COM will empty anything contained in the buffer; PSTAT.COM will display the number of characters that are currently stored in the buffer; EJECT.COM will send a form feed to the printer buffer.

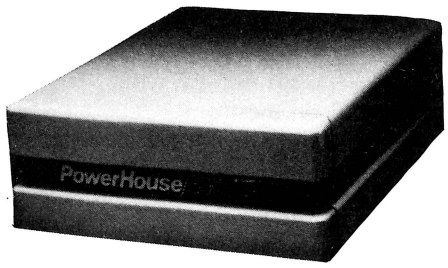
The buffer software does alter your MS-DOS boot disk, therefore, ANY software that sends output to the printer will be re-directed to the buffer.

Our congratulations to Titan Technologies for creating two fine utility programs for the QXPC2 card. ■



'Don't worry, dear. I've programmed the computer to sound just like me. You won't even notice I'm gone.'

The Dyna Tech Powerhouse/300



by Jerry E. Howell

SPEC SPOT

Product: DynaTech Powerhouse/300 stand-by power supply.
Input Power: 115 volt AC
Output Power: 300 VA pulse-width modulated.
Switching Time: 4 ms maximum 2 ms typical
Audible Alert: Beeps every 5 seconds with one minute warning.
Recharge Time: Approximately 4 hours
Power Dissipation: 1,500,000 Watts in 100 microseconds.
Protection: Transverse and common mode
Weight: 26 U.S. pounds, 11.8 kilograms
Size in inches: 21.25 L, 14.25 W, 5 H
Warranty: 1 year, 2 years on battery
Price: $595.00
Ease of Use: Excellent
Performance: Excellent
Summary: A very high quality unit which will protect your hardware and your data files. It is also an attractive unit so you won't need to hide it under your work surface.
Manufacturer:
DynaTech Computer Power
4744 Scotts Valley Drive
Scotts Valley, CA 95066

Commercial electric power is great for your lights, toaster, refrigerator, coffee maker, etc. Power line surges, spikes and interruptions have little, if any, effect on devices such as these. But your computer and other solid state equipment is quite another story. The integrated circuit chips inside your computer equipment are extremely sensitive, low-voltage devices which can easily be damaged by spikes and surges. Power interruptions as short as a small fraction of a second will cause a computer to lose the contents of the RAM memory. This won't hurt the computer, but it will result in the loss of your data in RAM.

POWER PROTECTION

Surveys show that most computer failures happen as a result of power-line voltage surges and spikes. The use of a surge and spike protector is surely the best single thing a user can do to help keep his computer away from the repair shop. There are many dozens of surge and spike protection units on the market. Most of these are good units, some are not so good, and some are of exceptionally high quality. The better ones sell for around $100.00 or so. As usual, you will get what you pay for.

STAND-BY POWER SUPPLIES

A stand-by power supply is a device that contains a battery charger, a battery pack, a transfer switching circuit and an inverter which changes the low voltage DC power of the battery pack to 117 volt 60 Hz AC power. In use, the unit is plugged into the utility-line outlet and your computer equipment is then plugged into a receptacle on the stand-by unit. Under normal conditions your equipment runs off the online power and at the same time the battery pack is kept fully charged by the charger. Upon a line-power interruption or drop in voltage, the stand-by unit changes the computer equipment source of power from the line to the battery powered inverter in a matter of from 2 to 20 milliseconds, typically. When the line-power returns, the equipment is transferred back to the line and the battery pack is recharged. Most, if not all, systems have audible alarms to warn the user that line power has failed. The user should always begin to save his work and power down his equipment in the normal manner in case the line-power doesn't come back before the battery pack runs down.

There are a number of battery powered stand-by units on the market. Sizes run from 200 watt to over 2000 watt. Units in the 300 to 400 watt range are the most useful sizes for microcomputer users. Prices range from $350.00 and up, depending on size and features. Some units have relatively long switching times and are at best marginal in their ability to prevent data loss. Again, you will get what you pay for.

DYNATECH POWERHOUSE/300

The DynaTech Powerhouse/300 is one of the few stand-by power supplies with a built-in spike and surge protector circuit (a patent pending, 3-stage design of very high quality) and a one year warranty. The Powerhouse/300 is housed in a very attractive heavy duty case which is primarily 3/32 inch thick aluminum alloy. The front of the unit has an indicator light which shows whether the unit is operating on line power or battery power, and the master ON/OFF switch. The back of the unit has two outlet receptacles, input and output fuses, a surge protector "OK" indicator light, alarm ON/OFF switch and the line power cord. DynaTech uses a premium quality sealed lead-calcium gel battery to eliminate the possibility of spilled liquids and because gel batteries require no maintenance. Also, this type of battery does not "remember" charge/discharge cycles which would have an adverse effect on backup time for the equipment. The battery pack has a two year warranty. The DC/AC inverter is the first modified square wave design in the industry to get the UL (Underwriters Laboratories Inc.) recognition. Pulse width modulation assures stable power under all battery pack conditions. Some other square wave inverters can actually damage your computer's power supply. The Powerhouse/300 weighs 26 lbs. and measures 14.25 inches wide by 21.25 inches long and 5 inches high.

USING THE POWERHOUSE/300

The unit is plugged into a 115 volt wall outlet and the front master switch is turned "On". A red

indicator light on the back of the unit verifies that all is well with the spike and surge protection circuit. Your computer and, if required by the software, your printer are plugged into the receptacles on the rear of the unit. A green LED on the front indicates that output from the unit's receptacle is being drawn from utility line power and that the battery pack is being trickle charged. At this point, your computer equipment is operating as usual with line power that has been cleaned up in the spike and surge protector. If the line power should fail, or for a test, you should pull the wall plug, the computer and printer would not know the difference. Within 4 milliseconds (maximum) the Powerhouse/300 would have detected a line voltage loss and switched it's output to the battery pack. An inverter would be changing the battery's low voltage DC current to 117 volt 60 Hz AC current, which the computer and printer need. The LED on the front of the unit would have changed from green to red, indicating that line power has failed. Along with the red LED, a beeper would sound about every 5 seconds as a warning. Given this situation and that you don't know how long the power interruption will last, you should begin saving your work to disk and power down the system. When the battery pack has discharged to the point where there is only one minute of power left, the intermittent beep will become constant tone. If you haven't finished and turned your equipment off before the end of the one minute tone, the entire system will turn itself off. When the power returns, Powerhouse/300 will monitor the line for 10 seconds to see if the voltage is steady. If so, it will switch you back to the line power as quickly as it switched you off and begin recharging the battery pack. The red LED will change back to green, and the beeper will stop. If you don't like the beeper, there is a switch to turn it off. Powerhouse/300 will completely recharge in 4 hours under normal conditions.

HOW LONG CAN POWERHOUSE/300 RUN YOUR EQUIPMENT?

Powerhouse/300 can supply 300 watts for 5 minutes, 250 watts for 10 minutes, and 200 watts for 16 minutes. Under test conditions, with the Powerhouse/300 fully charged, it ran as follows:

Test #1 -
Epson QX-16 only .....44 minutes
Test #2 -
Epson QX-10 and FX-80 Printer* ....25 minutes
Test #3 -
Epson QX-10 and CR-1510 Hard disk 23 minutes

* In test #2, the printer was printing constantly.

SUMMARY

The actual running time on stand-by should be more than enough for most applications.

One possible complaint against the unit is that there are only 2 output receptacles. The user with a computer, printer and a modem or someone with a QX-16, which requires separate power for the monitor and printer, would be in a spot. To DynaTech's credit, it seems that changes have been made and current production units have 3 outlets. NOTE: Users should never plug in any equipment to a stand-by power supply that is not vital in an emergency. To do otherwise is to defeat the reason for having one in the first place. A hard disk drive, whether needed in an emergency or not, should be protected with a stand-by unit in any case as loss of power before parking the heads can damage the disk. The $595.00 price is reasonable for this unit's size, especially in view of the built-in spike and surge protection, the over-all high quality and the one year warranty. Users of computer systems with a hard disk, and/or with programs that work with vital data such as accounting, shouldn't be without a power stand-by system of some kind. This one is to be recommended. ■

ATTENTION PORTABLE COMPUTER USERS

POWERPAK 3.1 provides HX–20 users with complete word–processing and communications software in one single ROM. PowerPak is the only HX–20 package in the world to combine these applications with a tape operating system and sidways printing ability. Finally, users can enjoy all of the HX–20's hardware capabilities with one powerful package –PowerPak.

PowerPak contains all the word–processing features that one expects to find in packages costing five times as much and running on desktop computers. PowerPak can do more than all other HX–20 programs combined because it is fully integrated and very efficient.

Vertical (sideways) printing is one of PowerPak's most popular features. It allows you to print the full width of your virtual screen on the microprinter, even from BASIC. PowerPak will also take care of pagination automatically. Changing font dimensions helps you create mailing labels, banners, etc.

By using PowerPak's tape operating system (PTOS), you can maintain a file directory that allows you to save, load, or merge cassette files effortlessly. You will never have to be concerned with the location of cassette data. You can even convert files created by another program over to PTOS.

Additionally, PowerPak supports an interactive search and replace function, variable wordwrap, tabs, a blinking inverting cursor, file upload/download capability, status screens/lines, macro key definition, file templates, and much much more. If you want more out of your HX–20 than you're getting now, plug in PowerPak and watch it out perform anything in its' class.

POWERPAK
FILE : create, select, rename, delete, save, load, merge.
WORD : move left/right, delete left/right (find/replace).
LINE : up, down, left, right, delete, erase, insert, send.
TAPE : save, load, kill, merge, find, dir–load, dir–save.
BLOCK : copy, move, delete, print, find, transmit, receive.
PRINT : vertical, standard, external, file, block, codes.
SETUP : screen/print formats, communications protocols, misc.

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Networks & Multiplexers

by Allen Howell

Do you have several QX-10's in your office and want to tie them together somehow? You may have read something about networks, and it seemed like the answer. We have been using a multiplexer system from Bi-Tech for over a year now in our offices, and recently received a network system from Easynet. What's a multiplexer? How is it different than a network?

Webster's formal definition of the word multiplex is: "being or relating to a system of transmitting several messages simultaneously on the same circuit or channel". The definition of a network is: "a system of computers, terminals, and data bases connected by communication lines".

The multiplexer system from Bi-Tech Enterprises allows more than one computer (up to 8) to share the same hard drive, and access the same programs and files at virtually the same time. The multiplexer is placed between the hard drive and all of the computers that are sharing the drive. Although a system such as this allows many different computers to share the same software and data files, it does not permit the sharing of peripherals. The Easynet network, on the other hand, connects the QX-10's to a common bus via telephone cable, which allows each computer access to any other computer, or attached peripheral, even RAM drives. The Easynet system supports up to 255 users.

The Bi-Tech Multiplexer System

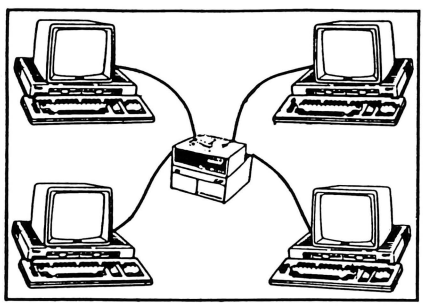
The Bi-Tech system allows you to partition a hard drive for several operating systems, including CP/M, TPM, MS-DOS, and DOS +. Any of these operating systems may be accessed simultaneously, by two or more users, with the exception of TPM (Valdocs), which has yet to be converted for mulitplexer use.

Other brands of computers may also share the same hard drive. The Bi-Tech multiplexer supports IBM, Epson QX-10 and QX-16, Tandy Radio Shack, NEC and ADDS computers.

Bi-Tech currently provides hard drives that range from 10M to 70M. For backup purposes, an optional 10M Cartridge drive is also available, a device that we find essential for any operation that is running off a hard drive larger than 10M. The cartridge drive serves as both a backup system, and it can also be used "on-line", to add 10M of additional storage capacity to your system.

If you already own a Comrex or a QCS drive, you will be pleased to learn that these drives can also work with the Bi-Tech system.

The Bi-Tech system is easy to setup and use. There is no new software to learn. Running a program off the Bi-Tech multiplexer and hard drive is no different from running the same program from your floppy drives, except the hard drive is faster.



There are a few things to be aware of in the Bi-Tech system. When more than one computer starts accessing the same device, a few problems arise. The most destructive is the possibility of two computers writing to the same file simultaneously. If this should occur, someone could lose the changes he made, or worse, a data base program could become confused and totally corrupt the entire file. This has happened to us on occasion using dBASE-II on the Bi-Tech system, and the only way to prevent it is to monitor each user of the system manually to make sure no one is working on something you wish to use, or to create or obtain software that can do this for you. What is needed is "file lockout" or "record lockout" capability. If a system has file lockout capability, then the system will automatically prevent two or more users from writing to the same file simultaneously. Record lockout allows more than one user to access the same file, but prevents any two users from accessing the same record within the file. Record lockout is the more desirable method. Here is a brief chart showing the differences:

Method	Result
Record Lockout	- Allows more than one user to access the same file while maintaining file integrity.
File Lockout	- Prevents more than one user from accessing the same file.
No protection	- Allows more than one user to access the same file resulting with corrupted files.

Some businesses need a security system built in, limiting access of certain files to select users. The Bi-Tech system does not include system security. All users have the same privileges, and are allowed to access all areas of the drive. This may be undesirable in an office environment where management and employees are multiplexed to the same drive, since anyone can examine, alter, or even erase any file at the operating system level. There

are however, public domain password protection programs available which give a user the opportunity to place a password on their file. Another alternative available is to purchase the CodeStar card from Sierra Star, which yields ultimate protection of files.

A disadvantage of the Bi-Tech system is one of proximity. The computer to the hard drive distance cannot exceed 50' without the added cost of signal boosters. Further, while up to 8 computers can access the same hard drive, peripherals such as printers cannot be shared.

The Network System

An alternative to a multiplexer system is a network system. This system provides different options, and different limitations. Before discussing any specifics about the Easynet system, a general description of the types of networks available is in order. There are three basic types of networks. These are: star, ring and bus networks.

A star network is a network wherein all of the computers are joined at a single point. At this intersection, one computer is dedicated for the system as the network manager, thus, all network activities must be processed through the managing computer.

A ring network can be thought of as a system wherein all computers are connected in a circle. This eliminates the need for a dedicated computer as a middle manager, since the entire network is connected in a circle. However, all the attached computers must be in operation for the network to function.

A bus network is a bus type communication channel wherein the computers simply tap into a bus (data communication) line. This eliminates the need for a network dedicated computer, and any computer that is not on-line within the system will not disable the entire network.

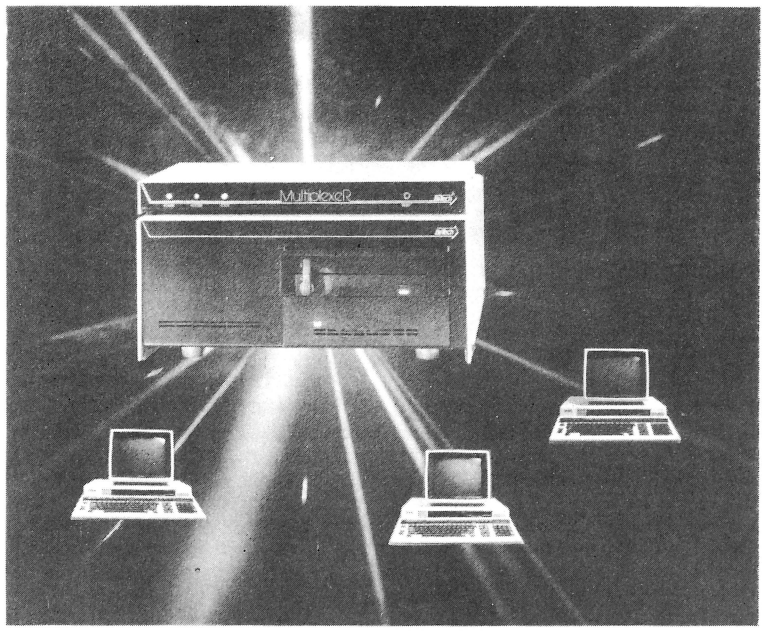
Easynet Network System

The Easynet System permits a set of micro computers to communicate in a manner that is reminiscent of the environment within larger mini or mainframe computers. It is a bus type network which allows computer to computer communications via twisted pair cables (telephone wire). It contains many functions that can only be found on larger multi-user computer systems.

Installing the Easynet system is relatively simple. The hardware aspect of the system consists of a small IC board, which is plugged into your computer's Z80 chip socket. To do this, you must open up the QX-10, remove the graphics board, then carefully remove the Z80A. The Z80A is then installed on the network IC board, and the IC board is plugged

The Bi-Tech Star Network

Able to link 8 computers to a Hard Drive System



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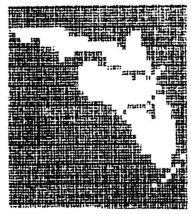

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into the now empty Z80 socket. A telephone line is then run from the Easynet IC board out the back of the QX-10. Easy to do, but it does take more time than simply inserting a board in one of the expansion slots.

Each computer that is to be a part of the network must have this board installed. Each computer is then simply connected to a common bus line, which is just a piece of wire with two ends.

Hardware installation is just half of the Easynet system. Easynet requires a special operating system called the Easynet Network Operating System. The Easynet OS is a modified version of CP/M. The usual CP/M B2.20 or B2.25 operating system is still in use, however, the Easynet OS is loaded and it sits just below CP/M's CCP where it takes control of your computer.

It does mean that there is going to be less room in the TPA for programs, but this shouldn't cause any problems unless you run programs that require lots of RAM. You can expect to lose about 6k of memory. The network can only be run using the Easynet OS, thus, other operating systems cannot be networked. Valdocs and TPM will not work at all with this system. An MS-DOS version is in the works, but the company has not informed us if this version will allow communications with the 8 bit systems.

If you can live with these limitations, then you'll like Easynet. It allows all computers in the network to communicate with each other. Users can access each others hard, floppy, or RAM drives, and even printers.

Easynet supports up to 255 users per network, and the proximity of each workstation to the network is proportional to the number of computers that are accessing the network. If ten computers were to access the network, each computer could be placed a maximum of 1,460 feet apart. A network of 64 computers would allow each computer to be placed 704 feet apart.

Other features of the system include: record and file locking, background spooling, security control, password and privilege levels, and multiple networks. Most of these tasks are performed through software commands within the Easynet operating system.

Some interesting commands available within the system include the WHO command. This utility shows the names of all other users who are accessing the system. The SEND command is also convenient in that it allows you to send messages to all or select individual users of the system, no matter what program the receivers are running.

Summary

As you can tell, there is a large difference between a multiplexer system and a network system. If most of your work is done using CP/M, then you would undoubtedly choose the Easynet system for its flexibility and because of the security and file lockout protection. However, if you switch between MS-DOS, TPM, and CP/M, then the Bi-Tech System is needed.

A more complete review of the Easynet system will appear in the next few months as we have more experience with it.

For more information on the Bi-Tech and Easynet systems respectively, contact:

Bi-Tech Enterprises Inc.
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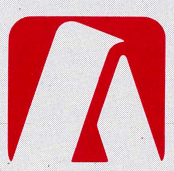

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LETTER QUALITY HELPS

Consider the DX-10

by Tim Nash

The vast amount of peripheral equipment and software available for our computers necessitates that all but the wealthiest of us weigh our purchases very carefully.

The majority of the printers we use are dot matrix. For the most part, they fulfill our requirements, producing acceptable letters to the utility company or printing out personal spread sheets. However, a void in the capabilities of dot matrix printers still exists. A void nicely filled by Epson's new DX series daisy wheel printers.

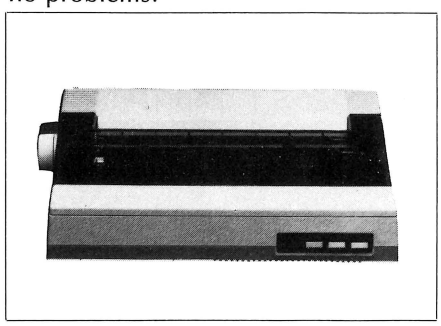
One year ago, before I had a computer, I bought a $500 typewriter from a well known national chain store. The sales clerk assured me that the typewriter could be hooked to a computer. After only one or two calls to knowledgeable local computer stores and finding user friendly liveware (i.e. a salesperson who spoke English), it was obvious to me that such a connection is much more involved than attaching a VCR to a TV. I took the typewriter back and bought a QX10 and an FX100.

Both served me well until I needed to produce resumés for job applications. The near letter quality output of the FX 100 simply was not good enough. A resumé must have a sharp, clean, businesslike appearance which a dot matrix printer can't quite match. The impression created by a piece of serious correspondence is very important.

An alternative to the purchase of a letter quality printer could be the use of a secretarial service. If you have a two page letter for them and an envelope, they would charge about five dollars. Add to this the time and gas it takes to drive to them, and the delay, it could have a total cost of about eight dollars. Since the DX10 has a list price of $299, thirty-eight uses of the secretarial service would pay for the printer.

To make a long story short, I recently bought an Epson DX10 daisy wheel printer. I love the FX I have been using and wanted something with the same one-year warranty and preferred something with the same quality. The DX is Epson's first daisy wheel printer, if Comrex units that only have a 90 day warranty aren't considered.

The DX10 at 10 characters per second, or the DX20 at 20 CPS are not the speed demons that the 160 CPS FX printer is. However, I have the FX for drafts, and speed was not nearly as strong a consideration as was price. The standard friction feed is very precise. I've used the DX for approximately 60 letters now and only had to re-feed one piece of paper because it didn't load straight. A nice feature is that when the ON LINE toggle button is pressed to take the printer off-line and load paper with the LINE FEED button, the entire print mechanism centers itself on the platen. This keeps the corners of the paper from snagging on the ribbon. A continuous sprocket-feed, with optional tractor unit is available as an accessory that will accept 4 to 10 inch forms. Yes, you can print addresses on standard sized business envelopes. Epson made the platen wide enough to accommodate them and they line up just as neatly as single sheets of paper. I've also put addresses from my Valdocs CARDFILE on about 50 three-part, carbonless order forms that my company was using for a special promotion; all with no problems.



The printer ribbon is the same as the one used by an Olivetti ET-221. Although you would think it would just take a stop at the office supply to pick up one, the three office supplies that I tried in my area could not supply it from stock. One offered to order it, but told me it might take two months. I called my local Epson dealer who had it for me within a week. Even though ribbon life is approximately 190,000 characters (about 290 pages with Valdocs default margins), you may want to keep one or two spare ribbons available until demand for the ribbon increases retail stock levels. This ribbon is produced in single-strike, multi-strike, and correctable type versions. The correctable type ribbon is usually available, but the DX's use the multi-strike ribbon. Many different print style wheels are available since the wheel is compatible with Diablo. You can also choose among elite, pica, or 1/120 inch proportional printing.

Four dip switches allow choices of pica or elite print, auto line feed or not, 11 or 12 inch page length, and cut sheet feeder installed or not. A fifth switch is in the block, but we are given no indication of what it does, or even if it is connected.

One note of caution, if you plan to use a switch box so you won't have to plug and unplug cables from two printers to the parallel port, make sure that all three cables are wired identically. If they are not, one or both printers may not work as intended. I suggest you use DEFKEY in Valdocs to change from one printer setup to the other. The DEFKEY strings that work flawlessly for me are:

To SETUP to FX - MENU, S, RETURN, space, P, RETURN, space, F, (5 RETURNS), C, RETURN, STORE

To SETUP to DX - MENU, S, RETURN, space, P, RETURN, space, H, (5 RETURNS), S, RETURN, STORE

The DX's settings for the Valdocs SETUP should be for the CRII/III, cut sheet mode. I now have both printers set to have three unprintable lines at the top in SETUP. This works nicely with the FX's SKIP-OVER-PERF dip switch set to ON. Valdocs 2 overrides this setting so you don't get double top and bottom margins, and ASCII documents are printed with a half inch top and bottom border instead of occasionally printing on the perforation. You should always leave Valdocs with the SETUP and the switch box set for the FX so that when you boot-up, the graphics fonts are loaded to it.

Perfórmance per dollar, the DX is one of the best computer investments I've made. Incidentally, I printed out one resumé with the DX. I went on one interview from the resumé, and I start my new job next week; selling computers. ■

Tim Nash is President of the Miami Valley User Group in Dayton, Ohio. A salesman for MicroComputer Center in Dayton (one of the largest Epson dealers in the midwest), he is a regular contributor of Valdocs tips on EpsOnLine on CompuServe.

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H.D. indicates Hard Drive.

HX Exchange

We have recently received several letters from HX-20 owners who express the feeling of abandonment. To meet their needs we will begin a regular HX EXchange column. There are new products for the machine we have scheduled for review, such as the amazing new PowerPak from CompuPak Portable Computers, Inc. A letter from Cliff Eckenboy (Jefferson, MD) suggested a column where HX'ers exchange information, we think this is an excellent idea, and make this column space available for that purpose. This will be a forum for HX-20 owners to share tips and tricks as well as a source of technical information about the machine. Planned installments include a tutorial on using the Monitor. Drop us a line with other topics you would like to see covered.

Unfortunately, the idea of having a Tape of the Month for the HX is not realistic due to the amount of time necessary to mass copy tapes on the HX. There is no way to automate the procedure as on the PX. We can provide hard copy of all the public domain software that we have for $5.00. If you would like to obtain this, send a check or money order to The HX EXchange, in care of the EpsonConnection. If you have a program that could be added to the list, send a tape copy and obtain our listing for only $2.00 (your tape will be returned).

HX EXCHANGE

Now to begin the EXchange. Ron Pratt uses the following listings to sideways print on the microprinter. Load "SPTO" into any "PF" location and type "RUN". 2) After running "SPTO" you can type in "NEW" because "SPT0:" will be loaded into memory until you decide to "initialize" your HX-20. NOTE: This is done to save RAM space. 3) Then load "SIDEPRNT.SKI" into any "PF" location and merely type "RUN". 4) The format of sideprint is 80 columns by 16 lines. 5) To list programs using "SIDEPRINT" presently in "BASIC" on the microprinter merely type LIST"SPT0:".

●SPTO●

```
100 REM "SPTO:" Initialization routine by E.J. Wald 1983
110 M1%=PEEK(&H136):M2%=PEEK(&H137):POKE &H2CE,M1%:POKE &H2CF,M2%
120 MEMSET 256*M1%+M2%+800
130 M%=256*PEEK(&H2CE)+PEEK(&H2CF)
140 FOR I%=M% TO M%+799:READ A$:POKE I%,VAL("&H"+A$):NEXT I%
150 EXEC M%
160 DATA 8E,4,AF,7B,40,78,27,8,FE,1,38,AD,0,71,BF,78,8D,0,32,33,C3,0,CE
170 DATA DD,6A,CC,7,A0,DD,68,D3,6A,DD,6C,FC,1,2C,DD,62,FC,1,34,DD,60,93,68
180 DATA DD,64,18,9C,6C,24,8,CC,6,5,BD,FF,64,20,7C,F,FF,1,34,FC,1,36,93
190 DATA 68,FD,1,36,8D,75,DC,6A,DD,60,DC,6C,DD,62,DC,64,FD,1,2C,8D,66,FE,1
200 DATA 34,8,8,8,A6,0,81,39,27,7,EE,1,9,9,9,20,F3,86,7E,A7,0,FC,1
210 DATA 2C,C3,0,3,ED,1,CE,1,3C,A6,1,81,45,27,2F,DF,6E,A6,1,EE,2,8C,FF
220 DATA FF,27,24,4D,2B,4,18,93,68,18,18,DE,6E,ED,2,6D,1,2A,2,D3,6E,18,A6
230 DATA 1,81,45,27,B,4D,2B,6,EC,4,93,68,ED,4,20,D1,FE,1,34,FC,2,CE,ED
240 DATA A,E,4F,FE,80,4,6E,0,DE,60,9C,62,27,E,A6,0,8,DF,60,DE,64,A7,0
250 DATA 8,DF,64,20,EC,39,1,1,1,1,1,1,1,1,1,1,39,0,0,3C,8D,0
260 DATA 38,3C,18,C3,0,6A,37,36,38,C3,0,20,ED,5,C3,0,7C,ED,7,C3,FF,A0,ED
270 DATA B,6F,13,18,CE,6,65,6D,0,27,B,8,8,8C,6,77,26,F5,38,38,20,9,ED
280 DATA 0,32,33,38,C3,0,38,18,20,C2,D8,45,78,74,65,6E,64,65,64,20,45,70,73
290 DATA 6F,6E,20,42,41,53,49,43,D,A,77,69,74,68,20,53,50,54,30,3A,20,62,79
300 DATA 20,45,20,57,61,6C,64,D,A,0,25,2C,FF,8F,53,50,54,30,20,0,0,0,0
310 DATA 8C,70,0,0,8C,70,8C,70,0,0,0,0,0,50,E,46,80,0,0,0,0,0,0
320 DATA B6,6,8A,81,20,27,5,C6,33,7E,84,33,8D,62,6D,13,2B,5,62,80,13,20,52
330 DATA 39,0,8D,E5,32,8D,52,36,6D,13,27,F6,32,81,D,27,31,81,A,27,2D,81,20
340 DATA 25,3D,36,A6,14,C6,50,3D,36,A6,15,1B,16,32,89,0,3C,30,E3,0,C3,1,D0
350 DATA 37,36,30,A6,4,EE,0,A7,0,38,38,31,6C,15,E6,15,C1,50,26,14,6F,15,81
360 DATA D,27,E,6C,14,E6,14,C1,10,25,6,8D,63,8D,40,8D,23,39,0,0,8D,0,38
370 DATA 18,83,0,92,18,39,0,0,0,8D,F2,6D,13,27,A,6F,13,6D,14,26,DF,6D,15
380 DATA 26,DB,39,0,0,0,8D,DE,6F,14,6F,15,18,C3,1,D0,18,CC,5,0,36,86,20
390 DATA A7,0,8,32,83,0,1,26,F4,39,3C,37,36,86,85,8D,B,BD,FF,94,86,20,8D
400 DATA 4,32,33,38,39,C6,18,FE,FF,D2,8,3C,A7,0,8,5A,26,FA,38,39,8D,A2,18
410 DATA C3,1,D0,DD,6E,C3,5,0,DD,6C,5F,37,5F,32,36,37,8D,67,DE,6C,3A,B6,1
420 DATA 90,A7,0,B6,1,91,A7,10,B6,1,92,A7,20,B6,1,93,A7,30,B6,1,94,A7,40
430 DATA B6,1,95,A7,50,33,5C,C1,10,26,D4,5F,37,86,10,3D,D3,6C,C3,0,E,FE,FF
440 DATA D2,8,3C,3C,18,8D,4D,8D,4B,8D,49,8D,47,8D,45,8D,43,8D,41,8D,3F,38,38
450 DATA BD,FF,91,33,25,C,5C,C1,6,26,D3,33,5C,C1,50,26,9E,39,C6,35,31,7E,84
460 DATA 33,0,0,0,0,0,37,36,DE,6E,3C,30,A6,3,C6,50,3D,EB,2,89,0,E3,0
470 DATA 18,A6,0,38,CE,1,90,BD,FF,67,32,33,39,0,0,3C,A6,0,36,E6,1,37,30
480 DATA 54,54,54,EE,6,E7,0,33,58,49,59,49,59,E7,1,32,A7,2,8D,C,8D,A,8D
490 DATA 8,18,30,ED,4,38,9,9,39,E6,0,86,20,97,6B,4F,54,24,2,9A,6B,74,0
500 DATA 6B,24,F6,A7,0,8,39,0,0,0,0,0,0,0,0,0,0,0
```

●SIDEPRINT●

```
10 REM HX-20 SIDEPRINT SKIWRITER FILE
S DONATED FOR PUBLIC DOMAIN BY R.L.PR
ATT
20 REM SAVED AT SIDEPRNT.SKI
30 SCREEN 0,0
40 COL=20:WIDTH COL,46
50 Y$="===================="
60 X$="* SKIWRITER MEMORY *"
70 PRINT X$;Y$;
80 PRINT"TURN ON PRINTER...";
90 FOR DELAY = 1 TO 1000:NEXT DELAY
100 CLS
110 DEFINT A-Z
120 OPEN "O",2,"SPT0:"
130 L=3129
140 L$=""
150 GOSUB 190
160 L=L+I
170 IF EOJ=1 THEN END
180 GOTO 140
190 FOR I=1 TO 80
200 A$=CHR$(PEEK(L+I))
210 IF A$=CHR$(3) THEN EOJ=1:GOTO 290
220 IF A$=CHR$(13) THEN 290
230 L$=L$+A$
240 NEXT I
250 FOR I=81 TO 1 STEP -1
260 A$=MID$(L$,I,1)
270 IF A$=" " THEN 290
280 NEXT I
290 PRINT #2,LEFT$(L$,I-1)
300 PRINT LEFT$(L$,I-1)
310 RETURN
```

Geneva Portable Network System

by Bob Hermann

The Portable Network System

What you see in the picture is a Portable Network System (PNS) based on the Hewlett Packard Interface Loop (HPIL) and controlled by an Epson PX-8. This is a true multi-user network that operates under either the PX-8's CP/M, BASIC, or Assembler, and is capable of supporting up to 950 devices. The system permits transmission speeds up to 200 Kbaud and enables the PX-8 and HX-40 to use all the capabilities of the HPIL.

Let us first consider just what an HPIL is. Then we'll examine the one shown in the above picture. The HPIL is an interface system which is formally defined in terms of not only communications protocols, but also the actual physical link between devices. An HPIL system then consists of a number of devices linked together by a this common interface loop. Three types of devices are on this system: Talkers, Listeners, and Controllers. A disk drive sending out data would be an example of a "Talker". A printer receiving this data would be a "Listener". A microcomputer (like the PX-8) commanding the disk drive to send out the data would be a "Controller".

Information travels over the two wire loop serially, one bit at a time. All devices understand a set of 60 some messages or commands; each of these messages (either data or instructions) consists of 11 bits, with the first three containing control information and the last eight either a command or data information. Commands are not executed until a local copy has been made, allowing concurrent execution and speeding up the performance of the whole system.

The PNS Network

With this background information on HPIL networks in general, let's look a little more closely at the network shown in the picture. Using the Geneva PX-8 as a reference, we see an Epson HX-40 to its right. This 3 1/2 pound portable also uses a CPM 2.2 operating system. It features a Z80 microprocessor that is almost twice as fast as the PX-8, and also unique plug-in modules that facilitate customization to a wide variety of tasks.

Behind the HX-40 is the Hewlett Packard 82161 digital, battery-operated microcassette drive. It allows storage of up to 128K of data per microcassette, and has an access rate almost 10 times the speed of that of the PX-8's microcassette drive. To the left of this is the battery-operated HP 9114, 3 1/2 inch disk drive. With 720K capacity per disk, this floppy drive operates at twice the speed of the PF-10.

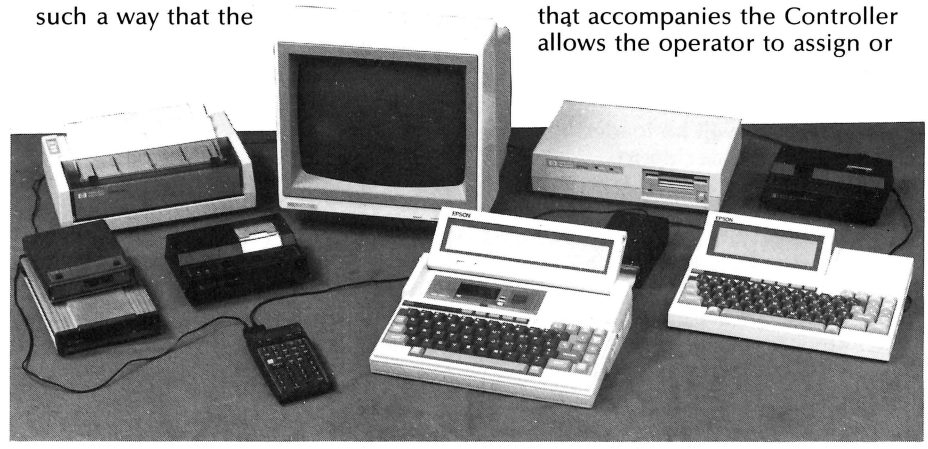
The monitor pictured allows use of a full 80X24 screen with the Geneva PX-8. A video interface (not visible in picture) is required to integrate it into the network.

To the left of the monitor is the HP Think Jet printer. Between the printer and the monitor (and not actually connected to the network) is the HP 82162A battery-operated thermal printer, which produces 24 column print on 2 1/2 inch wide thermal paper.

Sitting to the left of the thermal printer you see a Hayes Smartmodem with a HPIL Intelligent serial converter perched on top of it. This serial converter allows RS232 devices like the modem to be added to the network in such a way that the Xon/Xoff protocol of typical RS232 communications does not interrupt the overall performance of the network.

In front of the thermal printer you see a calculator type device which is the HP-41 Handheld Computer. Before the integration of the PX-8 into the HPIL system, this was a typical system Controller. It features a 12 character display, allows the entry of either alphabetic or numeric strings, and even permits redefinition of each key to execute programs or functions stored in memory. Along with the HP-70 series of handheld computers, the HP-41 handheld computers are the predominant controllers of the more than 70000 HPIL systems currently in operation. If a more powerful computer is desired to be used with the system, the next Hewlett Packard model that could be used is the HP110, at a cost of almost $3000 for a basic unit. So there is a considerable jump up from a $500-600 machine. You can see the significance of the integration of the PX-8 into the system as a middle range type of option.

Completing our tour of the Portable Network System depicted in the photograph, we come back to the PX-8 and the little black box behind it (partially hidden). This is the IMG Controller which will retail for about $250.00. It is connected to the PX system bus (or to the serial port with the 727 cable if the PX has a RAM pack or MFU attached). A Controller is required for every PX (or HX-40) that is in the network. The software that accompanies the Controller allows the operator to assign or



reassign devices on the network (which may be up to 100 meters apart) at will. When you power up, it displays the last configuration of the network so you may either reconfigure devices or continue with the setup as is. For instance, to save power you might want some of the devices on the network to go into a 'power down' mode, from which the Controller can wake them up as needed. The system's flexibility allows devices to request the active Controller for control of the network. If control is granted, then the requesting device would then become the active Controller.

Uses of the Portable Network

The lightweight design of the system, its low power requirements, and relative low cost dictate the applications for which it is implemented. For example, the most obvious use is that of a portable data collection instrument for security systems, water distribution systems, and energy monitoring and control systems. It is also a low cost alternative for office automation systems.

The U.S. Army has applied the PNS to psychological testing. In addition to the obvious data acquisition and processing enhancements that the network offers, it also permits 'real-time' evaluation of any participant's performance. From his control station, the instructor can 'log' onto any work station and see firsthand the progress of the subject. When the test is completed, the instructor can then have the data from each subject's station transferred to his computer for analysis.

IMG plans to first attack the market of presently installed HPIL systems with their PNS. With 70,000 such systems in existence, they have quite a large base to start with. Subsequently, they plan to see if there is any market for a PX-8 network of and by itself.

If the idea of a network of PX-8's sounds attractive, you can find additional technical information about the HPIL system in the following book: THE HPIL SYSTEM: An Introductory Guide to the Hewlett Packard Interface Loop, by Kane, Harper & Ushijima, Osborne/McGraw Hill (ISBN 0-931988-77-2).

For more information on the Portable Network System contact: Information Management Group, Inc. at P.O. Box 2890, Satellite Beach, FL 32937 (305-773-8322). ■

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Disk of the Month

EC-15 This month's disk contains CP/M utility programs, which includes printer utilities; USER, PIP, SUBMIT, and DIR replacement programs; a menu system; two disk utility programs, and a couple of security programs.

BANNER.ASM	- Prints banner headers to your printer.
CRCK.COM	- Computes the CRC values of files to acknowledge successful downloads.
DISK77B.COM	- Disk utility program. Allows you to copy, rename, and delete programs (among other functions) from one program.
DU-V87.LBR	- Disk Utility program. This program allows you to examine and alter any area of your disk.
FRONT46.LBR	- An extremely versatile menu system. Allows you to make CP/M more user friendly.
LOCKDEMO.LBR	- Allows you to place passwords on most any .COM program to prevent unauthorized use.
LOCKER.LBR	- Scrambles any data file or program to prevent unauthorized use.
NULU.COM	- Allows you to create, disassemble, and alter LBR files.
PATCH18A.LBR	- Excellent user friendly disk utility program. Allows you to change disk sectors, files, and memory.
PRINT.COM	- Prints files to your printer like the larger computers do; automatically prints a banner page, automatically skips the perforations and it also numbers the pages. Excellent utility if you print a number of files to your printer.
RPIP.ASM	- Fixes an unpopular quirk in PIP.COM. Allows you to do multiple file transfers to more than one disk without the need to re-load PIP each time.
SD-78.LBR	- Super Directory program. Contains many functions such as writing your DIR to files, filename searches, etc.
SUPERSUB.LBR	- A total replacement program for CP/M's SUBMIT.COM program. Supersub allows both interactive and .SUB file mode, nesting, and built in help, among other features.
U.COM	- Allows you to move among user areas.
UNPRO.LBR	- Unprotects BASIC programs and saves using the P option.

These public domain programs are provided on a quality diskette and the price does include downloading, postage, and handling. **To order the Disk of the Month,** please send a check or money order for $15 to the EpsonConnection, Disk Service Department, P.O. Box 14027, Detroit, MI 48214. Please be sure to indicate the disk order number (EC-15) with your payment.

Disclaimer: All of the programs and documentation on this disk are known to be public domain and no warranties are expressed or implied. There are no guarantees with public domain software. All of the programs have been tested on the Epson QX-10, and are known to run. Public Domain programs are programs written by other users, for public use at little or no charge, other than that for handling, mailing and materials. **Note:** We imply no similarity, or advise any comparison, between public domain software and software that is commercially produced. A beginning knowledge of CP/M is also recommended to utilize this software.

Rx for PX

by Bob Hermann

MEMORY SAVER

If you like to keep handy little utilities like BATTERY.COM on your RAM drive, but don't like sacrificing 1K of space for a one record file, then Mike Yarus has the answer. The following is part of the documentation for a program he has written to minimize the waste of precious RAM memory on the PX-8.

DO.DOC

This DO file offers two things.

1. It is useful in and of itself. It has three utilities for the Epson PX-8 squeezed into less than 1k, the size of the allocation group, and therefore the size of the minimum disk file.
   a. There is BAT.COM, a battery program, which reads the voltage of the PX-8's battery. BAT.COM lets you keep track of how much more computing you have left in the Epson.
   b. There is a version of David Kozinn's PFK.COM, which stores and installs a set of assignments for the PX-8's function keys. This allows you to overcome the tendency of WordStar to reassign your function keys when you go back into CP/M. But more importantly, it allows you to reassign your own keys with abandon, knowing that in a blink you can get back to your standard configuration.
   c. There is a new program, TD.COM, which I wrote to access the time and date capability of the PX-8. The Geneva with TD is the world's largest, heaviest digital watch. Perhaps it is the world's first digital grandfather clock? Never mind. In addition TD will also write a FILE with the current time in it, and therefore allow you to use your computer to date text, or as a recording stopwatch, which can store times accurate to the second. Recall that this all resides in 1k, and costs you no more disk space than any of the programs alone.
2. That is the second point of DO.COM. It illustrates an easy way of "packing" programs in order to use disk and directory space very efficiently when both are at a premium, as they certainly are in the Epson PX-8. It is remarkable that DO.COM actually puts four programs (counting DO itself) in 3/4 of a kbyte. As you can see by reading the description below, this still leaves space for a future fifth program, bigger than any of the first four, without exceeding 1k.

   The code which maintains the programs is included in this file as DO.ASM. Making a DO file for your favorite set of programs requires a familiarity with DDT and some knowledge of assembly

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language programming, though not much. You must also have LOAD.COM and ASM.COM (or their public domain equivalents). These programs usually come with CP/M, but unfortunately did not come with the non-disk PX-8. Equivalents are easy to find. In return for this required diddling with DO, you can take any program, whether you have the source code or no, (I have only BAT.COM, for example) and make it a part of a compact DO package.

Using DO

```
B>do
        B = BAT.COM
**>>DO P = PFK.COM
        T = TD.COM
Choice:
```

If your Choice: is B, you get a self-explanatory message and graphic about the battery voltage. Very useful; thanks to Bob Diaz, who wrote this program.

If your Choice: is P, your function keys will be assigned as follows:

1)dir
2)type
3)c:stat
4)c:pip
5)c:config^M
6)^QF ^N^N cr B cr ^F

This takes you to the top of the WordStar paragraph you're working in. Function 6 again takes you to the top of the next paragraph, and so on. This assumes single spacing, with two returns at the end of paragraphs.

7)QF ^N^N esc bs

Takes you to the bottom of the paragraph, otherwise like 6).

8)^KB sp ^KK bs ^KR N cr ^QK del

Many thanks to Dick Ezzard's "Shades of WordStar" for this one. Number 8 reads in a notes file (whose file name is "N") from your disk as a marked block. The notes file can contain the outline for what you're writing, a list of references, or ideas for insertion elsewhere in the text. Writers will find so many uses for this that you simply won't believe it, and it works wonderfully with the PX-8's ramdisk. The notes file, N, pops in and out (see function 9) in a flash.

9)^KW N cr ^KY

The N file was marked as a block (<B>.N.<K>) when it was read, and will now vanish back onto your disk, accepting any changes you have made while you had it onscreen. A simple ^KY (delete marked block) will send it away, and restore your file, without recording any changes you made to N.

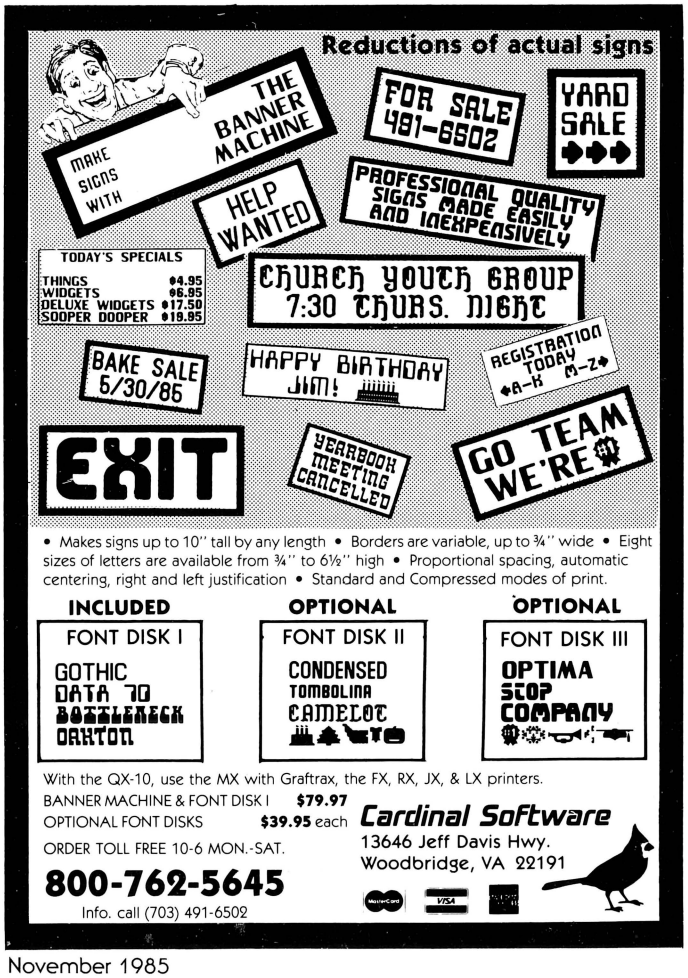
0)^QR ^KB ^QC ^KK ^KW

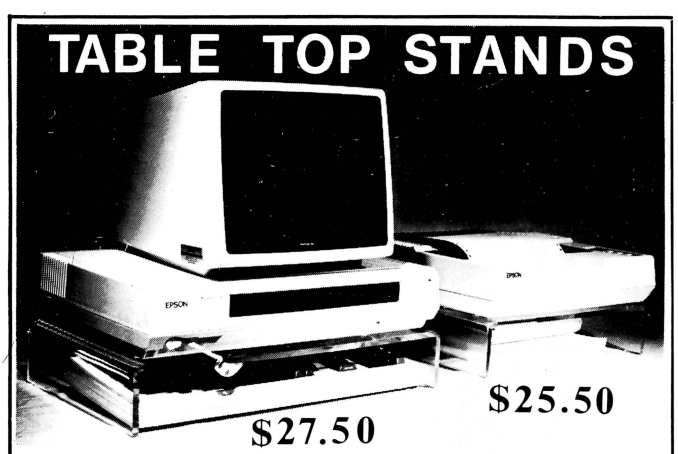
Function 0 marks your entire WordStar text as a block, and initiates a block write to disk. It will stop and ask for the name of the file to make. Why do this? It enables you to keep a growing text as a single file, without WordStar's space-gobbling BAK files. The size of the document you can edit is more than doubled. I don't feel that I'm giving up much security either, since many of the disasters avoided by BAK files are not likely on the battery-powered PX-8.

NOTE:Get David Kozinn's PFK.ASM from last month's EC Tape of the Month (#10) and edit and assemble it per the instructions in last month's RX4PX column.

If your Choice: is T, you get the date and time onscreen. I know you get this from the PX-8's program menu, but the menu drives me bananas, and I never use it. TD gives you the information where you need it. The PX-8 encourages you to go and compute from a hilltop, and TD allows you to keep track of the world from your hill, if you want to.

More to the point, if you feed TD (Time&Date) a filename, thusly:
A>DO time1<cr>





These custom stands for the QX-10 and Epson printers are made of heavy gauge 3/8 inch clear aclylic with polished edges and non-skid feet. The QX-10's keyboard slides underneath when not in use to protect it and free desk space for other uses. Inserting disks is easier and screen is raised to a better viewing height. Sturdy printer stand provides front or rear access to paper and requires no extra desk space. Available for 80 or 100 series printers (add $3.00 for larger model). Order by mail or phone and pay by check, M.O. or C.O.D. Same day shipment and 20 day return policy. Please add $3.00 per unit for shipping and $1.65 for COD's. MD residents add 5% sales tax. Dealer inquiries invited.

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"t" at the menu (or A>do time1<cr>t all in one string)

Then TD will write a text file called time1 with the time recorded in it, and display the t&d onscreen as well. The time recorded is that at the instant of - Choice: t.

The time file (time1, t2, Chicago, enlightenm...) can be opened with WordStar, and text can be added to the date, to give a dated journal. In the same way, a series of time files with descriptive names (lap1, lap2,...) is a recording stopwatch's record of any event. The files can be read into a WordStar file by name (using ^KR), and text added, if desired.

But be careful. TD does NOT add to a preexisting file. If the file you name on the command line (time1, t2, Chicago, enlightenm...) already exists, TD will REPLACE it. If you want to append a date to a file you already have, write a time file with a new name, then go into your existing file with WordStar, and read in the time.

The 8080 assembly language listing for DO (DO.ASM) is on this month's Tape of the Month, along with the DO.COM program described in this article. PFK.ASM and instructions for its modifications can be found on last month's Tape, if you desire to personalize your DO.COM. For those of you who do not have a PF-10 disk drive and hence do not have a copy of DDT, the program PATCH.COM is also available on the EpsonConnection Tape of the Month #10 (October). ■

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Continued from page 11

NSWEEP v2.05 vs CP/M-80 v2.25

Dear Paul Rothweiler,

The new user's column is much appreciated. The following is a tip in response to one given in the column.

The CP/M-80 2.25 INDEXER is a good program, however there is a better one. It is NSWEEP version 2.05. This program is not as fancy as INDEXER but is much more powerful. It pauses the viewing of files to the screen every twenty-four lines (this can be changed for the PX-8); it allows the R/O and SYS attributes to be set or cleared; it can also tag files by pattern matching; it has an extremely efficient squeeze and unsqueeze routine built-in that only squeezes when it saves space; etc. In short it is a much better program than INDEXER, and not much harder to use; it is available on EC-2 and TOM-4.

David Zundel
Nadi Airport, Fiji

Using Valdocs 2 Mail Autologon with EpsonNet RBBS's

Here is the step-by-step procedure to set up your Valdocs 2 Mail to autologon to any "RBBS v4.2" Epson-Net Bulletin Board System.

Once you are in MAIL and have a card set up with at least the person's (or BBS's) name and computer phone number, hit STYLE and set the parameters as required. Usually this is 300/1200 baud, 8 data bits, one stop bit, parity mode <N>one, <I>gnore error, <I>gnore XOFF, <F>ull duplex, <B>ack space, and <Y>es for Valdocs system (too see graphics). Leave the "New line delay" and "Text delay" to 0.

Now, press STYLE again. Now that you're in the "Log Card" section, press RETURN to get down to "Log on procedure:". Type the following with no spaces between things. If necessary, you can hit RETURN to continue on the 2nd or 3rd line. Type this:

Press the WORD Key Five (5) Times
Type ESC K Three (3) Times
Press the WORD key once more
Type your FIRST NAME & a Semicolon (;)
Type your LAST NAME & another Semicolon (;)
Type your PASSWORD and press the LINE key

You should now be able to dial up any Epson-Net Rbbs/Rtpm, that is running RBBS v4.2, and logon FASTER THAN CAN BE DONE BY HAND!!

Contributed by Ted Jerome, Sugarbush EpsonNet RBBS.
(Re-printed from the June/July Newsletter of the Kansas City Users Group. Mike Russell Editor: EPNEWS Newsletter, 10515 Cherokee Lane, Leawood, KS 66206).

Tape of the Month #11

This month's tape contains the following public domain files:

MFT.COM	(4K) -	A handy utility that enables mass file copying with one drive systems. Very useful for PF-10 owners.
PASSWORD.COM	(2K) -	Password protect your important programs.
RPIP.COM	(8K) -	Allows you to change the disk (PF-10), without interrupting the pip command.
SCRAMBLE.COM	(2K) -	Mix the contents of a file so thoroughly that only your secret code word will restore it to working order.
VDE-PX.COM	(6K) -	A fully functioning word processor with features such as find, block operations, & formatting. (This will fit on a ROM with MEX, giving you communications and a word processor on the same ROM).
SUPERSUB.COM	(3K) -	Offers the same capabilities as SUBMIT with the added feature of 'run-time operation' so that creation of a .SUB file is not necessary.

Disclaimer: All of the programs and documentation on this disk are known to be public domain and no warranties are expressed or implied. There are no guarantees with public domain software. All of the programs have been tested on the Epson QX-10, and are known to run. Public Domain programs are programs written by other users, for public use at little or no charge, other than that for handling, mailing and materials. **Note:** We imply no similarity, or advise any comparison, between public domain software and software that is commercially produced. A beginning knowledge of CP/M is also recommended to utilize this software.
ORDERING INFORMATION: To order TOM11, please indicate the tape number on your check for $10.00 and send to: The EpsonConnection, Tape Service Department, P.O. Box 14027, Detroit MI 48214.

Personalized ROM's for the Geneva PX-8

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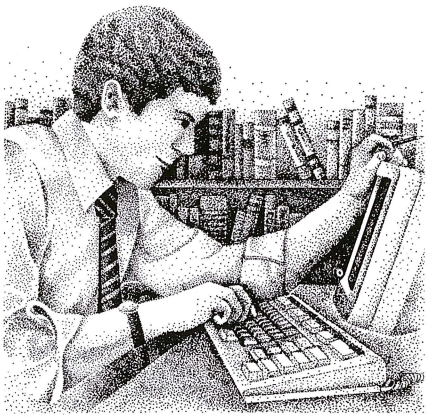
Send a self addressed, stamped envelope to the above address for a free catalogue of the files available. All chips will be mounted on plastic chip carriers. Hardcopy of documentation for programs is an additional $1.00 per file (except for MEX, which is $2.50).



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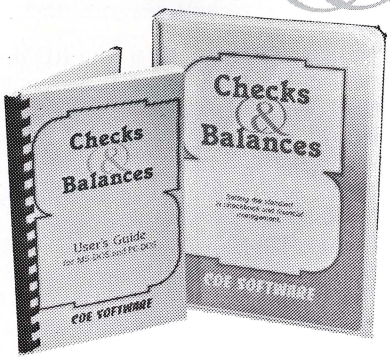

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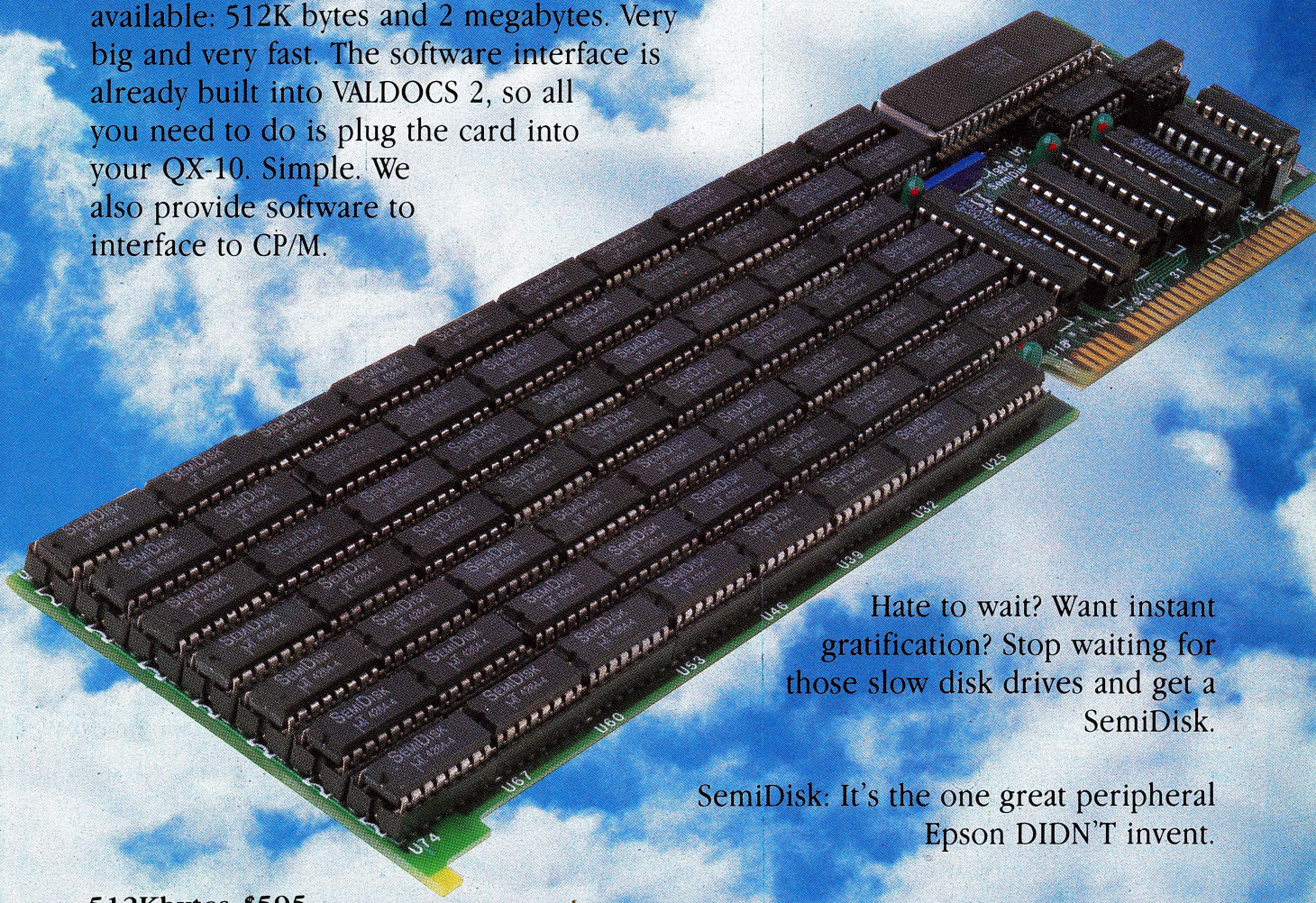

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